The Iron Age

INDEX TO VOLUME XXVIII.—JULY DECEMBER, 1881.

LIBRARY OF CONGRESS CITY OF WASHINGTON.

Abbreviations, Metrical, Sep. 29, p 15.
Absorption of solar rays by atmospheric ozone, Nov. 24, p 1.
Accidents in the iron trades of Great Britain, Insurance against, Sep. 29, p 15.
to employees, Sep. 22, p 14.
Account books as evidence, Dec. 15, p 5.
Accounts, Trade, Oct 27, pp 14, 15.
Accumulator, De Meriten's electric, Dec. 22, p 1
Action of metals of the platinum group upon coal gas, The, July 7, p 22.
of oxygen on mercury, The, S p. 15, p 11.
of ozone on germs contained in the air, Nov. 24, p 1
of reciprocating parts upon a crank pin, Aug. 18, p 9.
Actions, Mechanical imitations of electric and magnetic, Nov. 24, p 13.
Activity in Clyde Shipbuilding, Sep. 22, p 20.
Address of the New York Tariff Convention, Dec. 8, p. 15.
Adjustable door hanger, Warner's, Nov. 10, p 24.
After "charcoal" and "coke," what? Nov. 17, p 24
Agencies for false ratings, Liabilities of commercial, Dec. 15, p 14.
Agency, False representations to a Commercial, Oct. 27, p 17.
Air, Canal boat propelled by, Nov. 10, p 26.
Electric conductivity of moist, Nov. 24, p 17
on the elevated railroads, Compressed, Nov 3, p 17.
safety lamp, Filtered, Dec. 8, p 7.
Albatross, Mode of flight of the, Nov. 24, p 1. .
Alcohol, Rectifications of inferior, Oct. 13, p 19
Alloy, Separation of metals in, Nov. 3, p 1.
Altoona, The Pennsylvania Railroad Shops at, Aug. 18, p 17.
Alumina, Phosphorescent, Dec. 8, p 9.
Aluminum, An improved method of manufacturing, Sep. 1, p 1.
Amalgamated Association, The negro and the, Aug. 18, p 14.
Amateur engineers, Sep. 15, p 14.
America, The cost of water power in, Sep. 8, p 11.
Rates of wages in, Dec. 29, p 11
the economic progress of England and, July 21, p 7.
American and English pumps, Aug. 4, p 19.
art in tools, Oct. 6, p 17.
bottoms, Discriminating duties in favor of, Oct. 6, p 14.
coke, fuel consumption and freights, English, French and, July 7, p 14.
gun tube iron, English and, July 7, p 19.
Institute Exhibition, Nov. 17, p 3.
Institute of Mining Engineers, Oct. 6, p 15; 27, pp 15, 17; Nov. 3, pp 15, 17.
iron steamships, July 14, p 13.
iron trade in 1880, Statistics of the, Aug. 25, pp 9, 11; Sept. 1, pp 3, 5.
iron trade, Statistics of the, Aug. 18, p 19.
iron trade statistics, Aug. 11, p 14.
machinery, A Chinese estimate of, Aug. 4, p 13.
manufacturers in England, Sept. 1, p 26.
ores, Better protection for, Sept. 1, p 15.
products, Outlets for, Dec 29, p 9
pumps, English and, July 14, p 15; Sept. 8, p 14; 15, p 24.
Society of Mechanical Engineers, The, Aug. 11, p 15; 18, pp 15, 17, 19; 25, pp 15, 17; Oct. 20, p 14; Nov. 10, p 15.
trade in Mexico, Nov. 17, p 13.
transatlantic cable, The, Aug. 25, p 3.
Americans at the Electrical Exhibition, Prizes to, Oct. 27, p 13.
Amesbury band saw filing machine, The, Oct. 6, p 17.
expansion matcher heads, Oct. 6, p 5.
Ammonia process for gas purification, Dry, Nov. 10, p 9.
Amputating machine, An, Sept. 22, p 19.
Ancient aqueduct, Restoration of, Sept. 8, p 11.
Door Furniture, Oct. 6. p 1, 3.
Anglo-French commercial treaty, Oct. 20, p 1.
Annealing furnace for small articles, An, July 14, p 1.
furnaces, Improvement in, Dec. 15, p 3.
Annual meeting of the American Society of Mechanical Engineers, Nov. 10, p 15
report of the Secretary of Internal Affairs of Pennsylvania Part III., July 21, p 15.
Ansonia Clock Company's new buildings, The, July 21, p 24.
Anthracite coal, Using fine, Nov. 17, p 17.
Antimony, Hallett's, Oct 13, p 24.
Anti-tarnish paper, Sept 1, p 26.
Apparatus for determination of water held in suspension of steam, Brocq's, Sept. 29, p 1
for subaqueous boring, Dec. 15, p 1.
for the prevention of smoke, July 28, p 20.
Powerful weighing, Oct. 13, 19.
Test of a ventilating, Sept. 29, p 26.
of stored electricity, Practical, Oct. 20, p 26.
Applications of electricity, Mechanical, Sept. 22, p 7.
Approaches, East River Bridge, July 14, p 13.
Aqueduct, Restoration of ancient, Sept. 8, p 11.
Arbitration in England, Industrial, Dec. 1, p 14.
The example of Industrial, Sept. 8, p 14.
Architectural finish, Treatment of sheet metal work in, Aug. 4, p 26.
Architecture, Modern street, July 7, p 13.
Are subterranean telegraph lines practicable? Aug. 18, p 15.
Argentine Republic, Nov. 17, p 17.
Arizona copper mines, July 14, p 24.
Armor, Experiments with deck, Oct. 27, p 26.
plate trial, New, Dec 8, p 17.
plate trials in France, Oct. 6, p 35.
plates, Compound, Oct. 20, pp 3, 5.
Arranging and indexing drawings and patterns, Method of, Aug. 25, pp 19, 20.
Art and manufacture, July 28, pp 5, 7.
castings in iron, July 28, p 24.
in tools, American, Oct. 6, p 17.
schools, New York trade and, Sept. 22, p 3.
Artistic sheet metal work, Oct. 13, p 17.
Asbestos in chemical laboratories, Uses of, Nov. 3, p 1.
stoppers for combustion tubes, Nov. 24, p 1
Association of Charcoal Iron Workers, The National, Oct. 13, p 15; 20, p 5.
The Stamped Ware, Oct. 27, p 24.
Atlanta Cotton Exposition, Aug. 11, p 3.
Atlanta Exhibition, Awards at the, Dec. 29, p 7
Atmospheric ozone, Absorption of solar rays by, Nov. 24, p 1.
Auriferous ores, Treating complex, Sept. 15, p 11.
Australian trade, What there is in, July 7, p 3.
Austrian iron trade, Dec. 15, p 3.
tariff, Proposed revision of the, Dec. 22, p 14.
Automatic boiler feed, An improved, Aug. 11, p 1
rolls for making steel, July 28, p 1.
Axles, Cored steel, Dec. 8, p 19.
Balance crane, Dixon's, Dec. 29, p 24
of trade and her carrying trade, England's adverse, Sept. 29, p 14.
of trade, England's adverse, Nov. 3, p 14.
Balloon, Electricity in the, Oct. 20, pp 7, 9.
Baltimore, The history of the copper smelting industry of, Aug. 11, p 7.
Band saw filing machine, The Amesbury, Oct. 6, p 17.
saw, To join the ends of a, Sept. 15, p 3.
Bankers' Convention, Extracts from the reports of the, Sept. 1, p 15.
Barb fence wire patents, Iowa farmers and the, Sept. 22, p 15; Oct. 13, p 15.
Barbed fence litigation, The, Aug. 18, p 14, Sept. 8, p 15.
wire fence controversy, The, Nov. 3, pp 17, 19.
wire fences, Posts for, Dec. 15, p 26.
Barometric pressure on the discharge of springs, The effect of, Oct. 13, p 19.
Base ball notice, July 7, p 30.
Basic process, A Bessemer plant for the, Aug. 4, p 1.
process, Bi-products from the cinder of the, Oct. 6, pp 11, 13.
process in the United States, Nov. 17, p 15.
process in the United States, A. L. Holley on the, Nov. 17, p 7.
process, Mr. Reese and the, Dec. 29, p 14
steel, The Eston, Aug. 25, p 7.
Battery, Portable, Dec. 22, p 24.
The Gandini, July 7, p 23.
Batteries, Improvements in voltaic, Sept. 8, p 11.
Bauxite in the puddling furnace, Aug. 25, p 5.
Belts are made, How, Oct. 6, p 3.
Machinery, Nov. 3, p 19.
Bench clamp, Improved, Sept. 15, p 3.
Bending copper pipes by hydraulic pressure, Nov. 24, p 15.
Bereavement, The Nation's, Sept. 22, p 14.
Bessemer plant at Scranton, new, Oct. 27, p 7.
plant for the basic process, A, Aug. 4, p 1.
process, the charge containing but a small percentage of manganese, The chemical reactions in the, Nov. 3, pp 7, 9, 11.
steel and steel rails in the United States, The manufacture of, Nov. 3, p 1.
steel manufacture in Great Britain, Oct. 6. p 13.
Bestwood Iron Works, Dec. 15, p 15.
Bi-Metallism, New phase of, July 14, p 17.
Blast furnace, An obstructed, July 14, pp 5, 7.
furnace hearths and chimneys, July 7, p 7.
furnace slags for filling old coal workings, On the use of, July 7, p 13.
furnace, The use of high explosives in the, Nov. 17, p 1.
furnace, Titanic ores in the, Dec. 8, p 1.
furnaces, damping down, Aug. 25, p 5.
furnaces of the United States July 1, 1881, Condition of the, July 14, p 14.
furnaces of the United States Oct. 1, 1881, Condition of the, Oct. 20, p 14.
Blasting rocks under water, Dec. 29, p 13
rocks under water, A new method for, Sept. 1, p 1.
Blockade in West, The freight, Oct. 27, p 14.
Blooms and the Treasury rulings, Steel, Nov. 17, p 14.
Cost of rolling steel rails from, Aug. 18, p 14
Mr. Morrell on Steel, Dec. 15, p 14.
Steel, Nov. 24, p 14.
Blowing engines at the Staveley Iron Works, Horizontal, Dec. 22, p 1.
Boat propelled by air, Canal, Nov. 10, p 26.
Boats by electricity, The propulsion of, July 7, p 22.
Bohemia, The Thomas Gilchrist process in, Sept. 15, p 13.
Boiler by hydrostatic pressure, Rupturing a, July 21, p 1.
A straw-burning, Aug. 4, p 1.
explosion at Pittsburgh, The experimental, July 14, pp 14, 15.
explosions, Decomposition theory of steam, Dec. 15, p 1.
explosions in France, Aug. 4, p 13.
feed, An improved automatic, Aug. 11, p 1.
heads in Phila., Cast iron, Aug. 4, p 1.
heads, Flanging, Oct. 27, p 7.
insurance in Philadelphia, July 14, p 24.
New form of tubular, Oct. 13, p 1.
plate, Vertical rolls for bending, Sept. 1, p 1.
The Duplex safety, July 21, p 1.
Boilers, Horizontal tubular, July 14, p 11.
Weldless ring plates for, Oct. 6, p 11.
Bolts, To remove rusted, Nov. 17, p 26.
Bookkeeper's Companion, Dec. 22, p 20.
Books as evidence, Account, Dec. 15, p 5.
Boring, Apparatus for subaqueous, Dec. 15, p 1.
Borneo, British in, Dec. 8, p 15.
Boston, An iron observatory for, July 21, p 24.
decision on open-hearth metal, The, Sept. 8, p 14.
exhibitions, Nov. 24, p 17.
Bounties, French shipping, Oct. 6, p 14.
Bower-Barff process, The, Sept. 15, p 11.
Bracket, Improved roof, Nov. 17, p 9; Dec. 22, p 17.
Brands of tin plate, Private, Nov. 10, p 13.
Brass, Brown, Dec. 8, p 3.
copper and bronze, The art of founding in, Oct. 13, pp 3, 5, 7; 27, pp 3, 5, 7.
Brazilian tariff, Proposed change in the, Aug. 25, p 15.
Breach of contract, Suing an iron works for, Dec. 29, p 3
Break at the Pittsburgh water works, Another, Dec. 22, p 9.
Breathing apparatus, The Fleuss, Aug. 4, p 1.
Bridge at Pittsburgh, New, Aug. 11, p 3.
New Tay, Nov. 24, p 17.
St. Charles, Dec. 22, p 15.
Brightness of satellites, Comparative, Dec. 22, p 24.
British Columbia, Coal in, Aug. 11, p 7.
in Borneo, Dec. 8, p 15.
iron exports, Sept. 29, p 15.
iron trade prospects, Oct. 13, p 7.
shipping in 1880, Aug. 11, p 17.
Broadway tunnel, The, Sept. 29, p 7.
Brocq's apparatus for determination of water held in suspension by steam, Sept. 29, p 1.
Bronze hardware, New patterns, Dec. 8, p 19.
The art of founding in brass, copper and, Oct. 13, pp 3, 5, 7; 27, pp 3, 5, 7.
worker, A Japanese, Sept. 15, p 5.
Bronzes, Dec. 1, p 13.
Brooklyn Bridge is rapidly advancing, Work on the, Oct. 6, p 17.
Bridge, Steel for the, Oct. 20, p 26.
Brown brass, Dec. 8, p 3.
Buenos Ayres Exposition, Oct. 20, p 17.
Buffalo hide, Gear wheels of raw, Nov. 17, p 15.
skin, Paper made from, Oct. 27, p 26.
Build storage warehouse, How to, Nov. 17, p 13.
Building trades, Condition of the, July 14, p 15.
Buildings, Fire risks and fall, Dec. 8, p 11.
Use of iron in, Sept. 15, p 3.
Uses of iron in construction of, Oct. 20, p 1.
Bullion in New York Assay Office, July 21, p 15.
Burden Iron Company, The, July 7, p 22.
Burning coal mine at Tamaqua, Aug. 11, p 1.
roofs and floors, Slow, Oct. 6, p 17.
Bursting power of ice, Nov. 24, p 1.
of water pipes by frost, Dec. 29, p 24
Business and trade in Russia, July 14, p 11.
Condition of, Oct. 6, p 7.
By-Products from the cinder of the basic process, Oct. 6, p 11, 13.
Cable steamer Faraday, The, Sept. 1, p 1.
The American transatlantic, Aug. 25, p 3.
to South America, The, Dec. 29, p 13
California industries, Classification of, Aug. 25, p 13.
Calorific power of coal gas, The, Sept. 1, p 15.
Calorimeter as a pyrometer for high temperatures, Use of the, July 7, p 1.
Canada, French capital in, Sept. 22, p 14.
Canadian Provincial Exhibition, Sept. 29, p 26.
Canal boat propelled by air, Nov. 10, p 26.
steam navigation, Sept. 8, p 13.
shipments, The effect of low rail rates on, July 28, p 19.
Canals, Railroads vs., Dec. 29, p 3
Capital, The profits of labor and, July 28, p 11.
Carbon in white and gray pig irons, Dec. 29, p 26
Car construction, The substitution of steel for iron and iron for wood in, July 14, p 24.
journal box, New, Dec. 29, p 13
wheel, Life of a, Nov. 3, p 5.
wheels, Dec. 1, p 14.
wheels, rolled cast steel, Aug. 11, p 15.
Cars, Pile driving, Aug. 11, p 17.
Carbon in steel, Nov. 3, p 26.
The Eggertz color test for, Sept. 15, p 13.
Card and wages in the West, Dec. 22, p 14.
Carelessness costs, What, July 14. p 24.
Carrying trade, England's adverse balance of trade and her, Sept. 29, p 14.
Cash register, A, Aug. 11, p 24.
Cast iron boiler heads in Phila., Aug. 4, p 1.
iron cross-head, Steel pin in a, Oct. 13, p 19.
iron cylinders, Tests of, Aug. 18, p 26.
iron girder, New form of, Nov. 24, p 15.
iron while solidifying, Expansion of, Oct. 13, p 17.
steel car wheels, Rolled, Aug. 11, p 15.
Casting, German Ornamental, Dec. 8, p 1.
steel under pressure, Molds for, Oct. 13, p 23.
Castings in iron, Art, July 28, p 24.
On steel, Aug. 4, pp 7, 9.
Catalan forges in Europe, The, July 28, p 15.
Cement, Sept. 15, p 13.
for labels, July 21, p 3.
Cementation process, A new theory of the, Aug. 25, p. 7.
Census report on copper industry, Nov. 3, p 26.
Centrifugal Force, Rules for, Aug. 18, p 7.
Chainmakers' strike, Dec. 29, p 13
Change in Brazilian tariff, Aug. 25, p 15.
Channel Tunnel, The, July 21, p 5.
Charcoal and coke what? After, Nov. 17, p 14.
Iron Association, United States, Oct. 6, p 15
Iron workers, The, Sept. 15, p 15.
Iron Workers, The National Assocation of, Oct. 13, p 15; 20, p 15.
Charges containing but a small percentage of manganese, The chemical reactions in the Bessemer process, the, Nov. 3, pp 7, 9, 11.
Cheap gas for gas motors, Nov. 10, p 24.
Chemical laboratories, Uses of asbestos in, Nov. 3, p 1.
Chemistry of spiegeleisen production, The, Sept. 29, pp 9, 11.
Chicago warehouse, Jones & Laughlins, Oct. 6, p 28
Chimneys, Blast furnace hearths and, July 7, p 7
China, Coal mining in, Dec. 29, p 1
Chinese estimate of American machinery, A, Aug. 4, p 13.
students go, Why the, Aug. 25, p 11.
Chloride of magnesium, Uses of, Nov. 10, p 9.
Chrome iron ore, Determination of chromium in, Oct. 13, pp 24, 26.
Cincinnati, Coal trade of, Dec 15, p 19.
Exposition, The ninth, Sept. 15, p 24.
Exposition, The, Oct. 6, p 26
strike, The, July 7, p 15; 14, pp 19, 20.
Cinder of the basic process, Bi-products from the, Oct. 6. pp 11, 13.
City of Rome, Lighting steamship, Oct. 27, p 26.
of Rome, The new steamship, July 7, p 30
Cities, Future Mexican, Oct. 6, pp 5, 7.
Protection from fires in, Sept. 15, pp 9, 11.
Clause, The "Not otherwise provided for," Nov. 10, p 14.
Clerk's gas engine, Nov. 10, p 1.
Clock, A night light, July 14, p 1.
Clyde shipbuilding, Activity in, Sept. 22, p 20.
Coal dust, Heating metallurgical furnaces with, Oct. 6, p 11.
gas, The calorific power of, Sept. 1, p 15.
in British Columbia, Aug. 11, p 7.
Industries of Russia, The steel and, Sept. 22, p 15
in Russia, Dec. 1, p 1.
mine at Tamaqua, The burning, Aug. 11, p 1.
Coal mining in China, Dec. 29, p 1
statistics, Some, Nov. 3, p 15.
situation at Pittsburgh, The, Sept. 22, p 15.
trade of Cincinnati, Dec. 15, p 19.
transportation in Western rivers, Difficulties of, Dec. 29, p 3
Using fine anthracite, Nov. 17, p 17.
Value of different kinds of, Sept. 8, p 11.
workings, On the use of blast furnace slags for filling old, July 7, p 13.
Coaling stations, Isthmus, Sept. 22, p 15.
Cobalt, Welding nickel and, Sept. 15, pp 11, 13.
Codes and signals, Telegraphic, Sept. 29, p 24.
Coke for the production of manganiferous pig iron, A new, Oct. 6, p 11.
gas, Utilization of, Dec. 22, p 14.
making in Raleigh County, W. Va., Dec. 8, p 3.
New outlets for Connellsville, July 14, p 24.
outlet, The new Connellsville, Aug. 4, p 18.
Washed, July 21, p 14.
What? After charcoal and, Nov. 17, p 14.
Cold rolling of wire and fine iron, Oct. 13, p 17.
Color of glass bottles on the liquors contained therein, Effect of the, Nov. 10, p 9.
Colorado iron and steel, Nov. 10, p 14.
Colorado's first steel works, Aug. 11, p 3.
Columbia, Gathering rubber in, Sept. 1, p 26.
Columns, Trials of Harrison's combination, Dec. 8, p 9.
Tests of Pæneux, Aug. 25, p 26.
Colliery explosions, Dec. 8, p 19.
Combination columns, Trials of Harrison's, Dec. 8, p 9.
Combustion tubes, Asbestos stoppers for, Nov. 24, p 1.
Comet B, 1881, Spectroscopic observations of, Aug. 11, p 9.
Comets, Constitution of, Dec. 8, p 9.
Spectra of the two recent, Dec. 8, p 9.
Coming tariff convention, Nov. 10, p 14
Commerce and trade, Recent consular reports on American, July 28, p 13.
of New Orleans, Foreign, Aug. 11, p 9.
Commercial agency, False representations to a, Oct. 27, p 17.
agencies for false ratings, Liabilities of, Dec. 15, p 14.
development of the Dominion, The, July 28, p 14.
revival in Spain, Dec. 29, p 14
travelers, The, July 21, p 15.
Treaty, The Anglo French, Oct. 20, p 1.
"Common Sense" drying room, Nov. 17, p 7.
Comparative brightness of satellites, Dec. 22, p 24.
view of population, wealth and debt, Dec. 1, p 11.
Comparisons between different types of engines, Aug. 18, pp 3, 5.
Compasses, Improvement in, Nov. 10, p 11.
Compressed air on the elevated railroads, Nov. 3, p 17.
Competitive test of rock drills, Nov. 10, p 26.
tests of steam engines, Sep. 29, p 14.
Compound armor plates, Oct. 20, pp 3, 5.
engine, Semi portable, Nov. 24, p 1.
tramway engine, A, Aug. 4, p 28.
Condition of the blast furnaces of the United States July 1, 1881, July 14, p 14.
of the blast furnaces of the United States Oct 1, 1881, Oct. 20, p 14
of the building trades, July 14, p 15.
Conductivity of moist air, Electric, Nov. 24, p 17.
Confined gases in mines, Effects of, Dec. 29, p 3.
Congress, Trades' union, Sept. 29, p 24; Nov. 24, p 14.
Connecting metallic wires, A new method, Oct. 13, p 19.
rod, The, Aug. 18, pp 9, 11.
Connellsville coke, New outlets for, July 14, p 24.
coke outlet, The new, Aug 4, p 15.
coke trade, The, July 21, pp 11, 13.
Conservation of Electricity, The, Sept. 22, p 17.
Conspiracy law in Pennsylvania, Enforcing the, Oct. 27, p 17.
Constitution of Comets, Dec. 8, p 9.
Constructing parabolic reflecting surfaces, Nov. 10, p 9.
Construction of buildings, Uses of iron in the, Oct. 20, p 1.
Constructive material, Tests of, Oct. 13, pp 7, 9.
Consular reports on American commerce and trade, Recent, July 28, p 13.
Consumption, Gaseous fuel for general, Dec. 1, p 11.
in iron smelting, Fuel, Sept. 29, p 13.
in the manufacture of pig iron, Fuel, Oct. 6, p 11.
of copper, Dec. 15, p 15.
of fire damp, The, Oct. 27, p 26.
of iron for the fiscal year, Our imports and, Sep. 8, p 14.
of power for rolling iron and steel, On the, Aug. 18, p 1.
of spelter, The increased, Oct 13, p 14.
Continent, Measuring solar heat on the crown of the, Oct. 20, p 9.
Controversy, The barbed wire fence, Nov. 3, pp 17, 19.
Convention, Address of the New York Tariff, Dec. 8, p 15.
National tariff, Dec. 1, p 15
New York tariff, Dec. 8, p 14.
resolutions, Tariff, Dec. 15, p 15.
Conventions, Coming tariff, Nov. 10, p 14.
Copper, Sept. 8, p 20.
and bronze, The art of founding in Brass, Oct. 13, pp 3, 5, 7; 27, pp 3, 5, 7.
Consumption of, Dec. 15, p 15.
Industry, Census report on the, Nov. 3, p 26.
mines, Arizona, July 14, p 24.
pipes by hydraulic pressure, Bending, Nov. 24, p 15.
precipitates, Decorating iron and steel by, Oct. 13, p 17.
smelting industry of Baltimore, The history of, Aug. 11, p 7
The future of, July 14, p 14.
The refining, Oct. 6, p 14.
Coreo to foreign trade, Opening, Dec. 1, p 14.
Cored Steel Axles, Dec. 8, p 19.
Corn crops, prospects of the, Aug. 25, p 13.
crops, The wheat and, Sept. 1, p 14.
Corporations, The law of, Oct 27, p 11.
Corrosion on sheared surfaces, Sept. 15, p 7.
Cosmic dust, Meteoric or, Oct. 20, p 7.
Cosmical dust, July, 7, p 22.
Cost of electric lighting as compared with gas, Nov. 24. p 20.
of living, Wages and, Aug. 25, p 26.
of rolling steel rails from blooms, Aug. 18, p 14.
of water power in America, Sept. 8, p 11.
Cotton Crop, The, Oct. 6, p 15.
exposition, Atlanta, Aug. 11, p 3.
manufacture in the South, Dec. 1, p 14.
tie case at Philadelphia, The, Oct. 27, p 14.
Counter-balance, Outside conditions affecting the, Aug. 18, p 13.
balance weights, Practical estimation of, Aug. 18, pp 7, 9.
balancing of reciprocating parts, Aug. 18, p 9.
Course of the tin plate market, The, Sept. 29, p 7; Oct. 27, p 15.
Covering for gutters and leaders crossing sidewalks, Sept. 15, p 7.
Crampton's rotary puddling furnace, Dec. 1, p 28
Crane, A monster, Oct. 13, p 19.
Dixon's balance, Dec. 29, p 24
Crank pin, Action of reciprocating parts upon, Aug. 18, p 9.
Crop, Prospects of the corn, Aug. 25, p 13.
Crops, The, Oct. 13, p 24.
The wheat and corn, Sept. 1, p 14.
Cross head, A steel pin in a cast iron, Oct. 13, p 19.
Crown of the Continent, Measuring solar heat on the, Oct. 20, p 9.
Crucible for producing zinc, New, Sept. 15, p 7.
Cuba, New customs rules in, Sept. 8, p 15.
Cupola record, Good, Dec. 22, p 15.
Curiosities, Electrical, Sept. 29, p 7.
Curious patent case, A, Aug. 18, p. 20.
Currents, Photo-electric, Dec. 29, p 1
Customs Rules in Cuba, New, Sept. 8, p 15.
Cut metal work, Decorative, Nov. 24, p 17.
Cutler & Co.'s, E. P., creditors, July 7, p 24.
Cylinder vs. compound engines, Single, July 21, p 9.
Tests of cast iron, Aug. 18, p 26.
Damping down blast furnaces, Aug. 25, p 5.
Dangers of electric light wires, Nov. 17, p 15.
Dean, Iron manufacture in the Forest of, Dec. 8, p 9.
Death of Alan Wood, Sr., Dec. 1, p 26.
of James Stokes, Aug. 4, p 26.
Deaths from industrial pursuits, Sept. 1, p 13.
Debt, Comparative view of population, wealth and, Dec. 1, p 11.
Decision on open-hearth metal, The Boston, Sept. 8, p 14.
Deck armor, Experiments with, Oct. 27, p 26.
The steel boom, Sept. 15, p 14.
Decomposition theory of steam boiler explosions, Dec. 15, p 1.
Decorating iron and steel by copper precipitates, Oct. 13, p 17.
Decorative cut metal work, Sept. 8, p 26; Nov. 24, p 17.
Deep mining, The physical limits of, Oct. 20, p 3.
De Lesseps' directors admitted, July 14, p 17.
De Meritens electric accumulator, Dec. 22, p 1.
Delivery, Reclaiming goods before, Dec. 15, p 5.
Density of metals, The fluid, Sept. 29, p 15.
Department, London Fire, Nov. 24, p 24.
Dephosphorizing practice, A note on current, Nov. 3, p 3.
process, The Garnier, Aug. 18, p 1.
Deposit of dufrenite, A large, July 7, p 22.
of sulphate of soda, A large, Sept. 8, p 11.
Deposition of copper on iron in a magnetized field, Oct. 13, p 17.
Deposits in Lapland, Iron, Sept. 15, p 11.
Derrick, A fifty-ton, Aug. 18, p 1.
A powerful, Aug. 4, p 13
Design of structures in iron, The influence of Woehler's experiments on the, Oct. 13, p 19.
Desilverizing lead, Luce Fils et Rozan's process of, Sept. 22, p 15.
Destruction of a Pittsburgh shovel factory, Dec. 22, p 15.
Determination of chromium in chrome iron ore, Oct. 13, pp 24, 26.
of water held in suspension by steam, F. Brocq's apparatus for, Sept. 29, p 1.
Developing a district, What a furnace can do in, Dec. 22, p 7.
Development of Texas, The, Sept. 8, p 24.
Developments in regard to the East River Bridge, New, Dec. 22, p 15
in the tin market, Sept. 29, p 14.
Differential governor for water wheels, Weaver, Nov. 24 p 26.
Difficulties of coal transportation on Western rivers, Dec. 29, p 3
Direct process at Lisbon, The Siemens, Aug. 25, p 5.
process, The Siemens, Dec. 29, p 14
Directors, Responsibility of, Dec 15, p 15
Directory of boiler owners and steam users for New York and New Jersey mills, Dec. 8, p 15.
Discharge of springs, The effect of barometric pressure on the, Oct. 13, p 19
Discrimination in favor of American bottoms, Oct. 6 p 14
Distribution in St. Louis, Heating gas, Dec. 1, p 15.
of time, Pneumatic, Sept 29, p 13.
District, New coal one, Dec. 8, p 17.
Dixon's balance crane, Dec. 29, p 24
Documents, Public, Dec. 8, p 14.
Dolbear's and Edison's telephone, Sept. 8, p 11.
Dominion, The commercial development of the, July 28, p 14.
Door Furniture, Ancient, Oct. 6, pp 1, 3.
Hinges, Warner's adjustable, Nov. 10, p 24
springs, Improved, July 7, p 13.
Double-action stamping and drawing press, New, July 28, p 9.
Doubtful statistics, Dec. 8 p 11.

Dovetailing machine, Parker, Dec. 8, p 13.
Drainage by electricity, Nov. 17, p 15.
Drawing press, New double-action stamping and, July 28, p 9.
Drawings and patterns, Method of arranging and indexing, Aug. 25, pp 19, 20.
Dredger in the world, Trial of the largest, Aug. 11, p 9.
Dresser, Huntington emery wheel, Dec. 15, p 9.
Dressing, Tool, Nov. 24, p 5.
Drilling machines operated by electricity, Dec. 15, p 1.
Drills, Competitive test of rock, Nov. 10, p 26.
Drop presses, Improvement in, Sept. 22, p 19.
Dry ammonia process for gas purification, Nov. 10, p 9.
rooms, Nov. 24, p 3.
seasons, The periodicity of rainy and, Sept. 15, p 7.
Drying room, "Common Sense," Nov. 17, p 7.
Dufrenite, A large deposit of, July 7, p 22.
Duplex safety boiler, The, July 21, p 1.
Durability and economy of Manganese Bronze, July 28, p 11.
of stone, Testing the, Aug 11, p 1.
Dust explosions, July 21, p 24.
Duty on open hearth steel, The, Aug. 4, p 14.
Duties in favor of American bottoms, Discriminating, Oct. 6, p. 14.
Earth and luminiferous ether, The relative motion of the, Aug. 11, p 1.
East River Bridge approaches, The, July 14, p 13.
River Bridge, Fabrication of superstructure of the, Sept. 22, pp 9, 11.
River Bridge, New developments in regard to the, Dec. 22, p 15.
Economic progress of England and America, The, July 21, p 7.
Economy of wind power, Nov. 17, p 15.
of manganese bronze, The durability and, July 28, p 11
The Wharton school of finance and, July 7, p 17
Edison's Electric Meter, Dec. 22, p 24.
Effect of barometric pressure on the discharge of springs, The, Oct. 13, p 19.
of low rail rates on canal shipments, The, July 28, p 19.
of pressure on seed germination, Nov. 24, p 1.
of the color of glass bottles on the liquors contained therein, Nov. 10, p 9.
on Europe, Gold drain in its, Dec. 15, p 14.
Effects of confined gases in mines, Dec. 29, p 3
of light and heat upon vegetation, Sept. 29, p 13.
of lightning on trees near telegraph wires, Nov. 10, p 11.
of some meteorological phenomena on the telephone, Dec. 22, p 24.
Eggertz color test for carbon, Sept. 15, p 13.
Elastic lacquer, Dec. 15, p 1.
limit *vs.* tensile strength, Aug. 11, p 14.
Electric accumulator, De Meriten's, Dec. 22, p 1.
and magnetic actions, Mechanical imitations of, Nov. 24, p 3.
candle in vacuum, Jamin's experiments with the, Sept. 8, pp 11, 13.
conductivity of moist air, Nov. 24, p 17.
head lamp for locomitives, Nov. 3, p 28.
Lamps, Iridium for, Nov. 24, p 1.
light in railway trains, Dec. 29, p 9
light on vegetation, Influence of, Dec, 22, p 24.
light, The Sun, Aug. 4, p 1.
light, Varieties of the, Nov. 17, p 13.
light wires, Dangers of, Nov. 17, p 15.
lighting as compared with gas, Cost of, Nov. 24, p 20.
lighting, Fire risk of, Nov. 10, p 20; Dec. 8, p 14.
meter, Edison's, Dec. 22, p 24.
Electrical curiosities, Sept. 29, p 7.
Exhibition, Prizes to Americans at the, Oct. 27, p 13.
recorder, An, Oct. 20, p 13.
Electricity, Drainage by, Nov. 15, p 17.
Drilling machines operated by, Dec. 15, p 1.
Engraving on glass by means of, Dec. 15, p 1.
Fire from, Oct. 27, p 24.
in mining, Transmission of power by, Sept. 22, p 13.
in the balloon, Oct. 20, p 7
Marvels in, Sept. 1, pp 11, 13
Mechanical applications of, Sept. 22, p 7
Practical application of stored, Oct. 20, p 26
Singular use for, Oct. 27, p 7
Steering vessels by, Oct. 13, p 17
The conservation of, Sept. 22, p 17
The propulsion of boats by, July 7, p 22
Elevated railroads, Compressed air on the, Nov. 3, p 17
Emery wheel dresser, Huntington, Dec. 15, p 9
Emigrate, Warning to English iron workers not to, Oct. 27, p 13
Emigration in the United States, German, Aug. 25, p 13
Employees, Accidents to, Sept. 22, p 14
Employers' liability for injury to workmen, July 21, p 1
Enactments, Recent trade-mark, Sept. 8, pp 17, 19, 20, 15, p 15; 22, p 13
Ends of a band saw, To join the, Sept. 15, p 8
Engine, A compound tramway, Aug. 4, p 28
A 2500 horse-power steam, Nov. 3, p 1
Clerk's gas, Nov. 10, p 1
New gas, Nov. 17, p 15
Semi-portable compound, Nov. 24, p 1
The Ravel gas, July 7, p 1
Engines and other machinery having reciprocating parts, Counterbalancing of, Aug. 18, pp 7, 9, 11, 13
at the Frankfort Opera House, Gas, Nov. 24, p 15
at the Staveley Iron Works, Horizontal blowing, Dec. 12, p 1
Comparison between different types of, Aug. 18, pp 3, 5
for Germany, English steam, Nov. 17, p 17
Notable gas, Aug. 4, p 26
Pittsburgh Water Works, Dec. 29, p 14
Single cylinder *vs.* compound, July 21, pp 9, 11
Engineering, Our progress in mechanical, Nov. 10, p 3
progress during the last fifty years, Retrospect of mechanical, S pt. 29, pp 1, 3
projects, A mammoth, July 14, p 24
structures, Wind pressures on, Sept. 15, p 15
Engineers, Amateur, Sept. 15, p 14
at Harrisburg, The Mining, Nov. 3, p 15
pocketbook, Oct. 27, p 17
England, American manufactures in, Sept. 1, p 26
and America, The economic progress of, July 21, p 7
A proposed patent law for, Aug. 25, p 14
A warning from, July 21, p 14
Industrial arbitration in, Dec. 1, p 14
Iron ores and iron works in West Yorkshire, Dec. 29, p 5
The sliding scale in the North of, Aug. 25, p 20
England's adverse balance of trade, Nov. 3, p 14
adverse balance of trade and her carrying trade Sept. 29, p 14
English and American gun-tube iron, July 7, p 19
and American pumps, July 14, p 15; Sept. 8, p 14; 15, p 24
French and American coke—Fuel consumption and freights, July 7, p 14
hardware, The influence of American competition on, Aug. 4, p 14
iron workers not to emigrate, Warning to, Oct. 27, p 13
Local Government Board and its work, The, Oct. 20, p 7
English pumps, American and, Aug. 4, p 19
rail-finishing plant, A modern, July 28, p 1
steam engines for Germany, Nov. 17, p 17
sources, Tariff arguments from, July 7, p 14
trade unions in 1880, July 21, p 15
Engraving on glass by means of electricity, Dec. 15, p 1
Enlargement, Welland canal, Oct. 13, p 15
Enterprise Mfg. Co., The, Aug. 11, p 9
The history of a Delaware industrial, Aug. 4, p 15
Equal specific gravity, Separation of minerals of, Sept. 29, p 15
Error has been perpetrated, How a land, Oct. 20, p 3
Essay on Springs, An, July 28, pp 3, 5
Eston basic steel, The, Aug. 25, p 7
Ether, The relative motion of the earth and luminiferous, Aug. 11, p 1
Europe, Gold drain in its effect on, Dec. 15, p 14
The Catalan Forge in, July 28, p 15
The Lauth three-high mill in, Oct. 6, p 11
Evidence, Account books as, Dec. 15, p 5
Example of industrial arbitration, Sept. 8, p 14
Excessive railway building, Oct. 13, pp 9, 13
Exhibition, American Institute, Nov 17, p 3
Awards at the Atlanta, Dec. 29, p 7
at Milan, The, Aug. 4, p 11
Prizes to Americans at the Electrical, Oct. 27, p 13
The Canadian Provincial, Sept. 29, p 26
Exhibitions, Boston, Nov. 24, p 17
Fall, Dec. 8, p 17
Expanding mandrel, An, Nov. 3, p 13
Expansion matcher heads, Amesbury, Oct. 6, p 5
of cast iron while solidifying, Oct. 13, p 17
Experience with steel rails, A strange, Oct. 13, p 17
Experimental boiler explosion at Pittsburgh, The, July 14, pp 14, 15
Experiments on the design of structures in iron, The influence of Woehler's, Oct. 13, p 19
with deck armor, Oct. 27, p 26
with the electric candle in vacuum, Jamin's, Sept. 8, p 11
with the government testing machine, Dec. 8, p 13
Explosion, Velocity of gaseous, Aug. 11, p 24
Explosions, Colliery, Dec. 8, p 19
Decomposition theory of steam boiler, Dec. 15, p 1
Dust, July 21, p 24
in France, Boiler, Aug. 4, p 13
Explosives in the blast furnace, Use of high, Nov. 17, p 1
Export trade, Our grain, Oct. 20, p 26
Exports and imports for ten months of the fiscal year, July 14, p 20
British iron, Sept. 29, p 15
from San Francisco, Sept. 29, p 21
Exposition, Atlanta Cotton, Aug. 11, p 3
Buenos Ayres, Oct. 20, p 17
The Cincinnati, Oct. 6, p 26
The ninth Cincinnati, Sept. 15, p 24
Extinguisher, New portable fire, Dec. 29, p 24
Extracting magnesia from sea water, Sept. 15, pp 7, 9
Extraction of phosphorus from iron, Oct. 6, p 13
Extracts from the reports of the Bankers' Convention, Sept. 1, p 15
Eye bars, An old mill for rolling, Aug. 4, p 17.
Fabrication of superstructure of the East River Bridge, Sept. 22, pp 9, 11
Factories, Fire protection in mills and, Nov. 24, p 7; Dec. 1, p 3
Fair, St. Louis, Oct. 20, p 17
trade, Aug. 11, p 20; Sept. 1, p 14
trade movement, The, Sept. 8, p 13; 29, p 3.
Fall exhibitions, Dec. 8, p 17
False ratings, Liabilities of commercial agencies for, Dec. 15, p 14
Faraday, The cable steamer, Sept. 1, p 1
Fence controversy, The barbed wire, Nov. 3, pp 17, 19
litigation, The barbed, Aug. 18, p 14
wire stretcher, Samson, Dec. 1, p 11
Fences, Posts for barbed wire, Dec. 15, p 26
Field forge, Hammel's, Dec. 22, p 24
Filing machine, The Amesbury band saw, Oct. 6, p 17
Filling old coal workings, On the use of blast furnace slags for, July 7, p 13
Filtered air safety lamp, Dec. 8, p 7.
Filters, Reversing, Dec. 22, p 14
Finance and Economy, The Wharton School of, July 7, p 17
Fine anthracite coal, Using, Nov. 17, p 17
Finishing plant, A modern English rail, July 28, p 1
Fire bricks, Flint, Sept. 8, p 9
damp indicator, Dec. 29, p 24
damp, The consumption of, Oct. 27, p 26
department, London, Nov. 24, p 24
extinguisher, New portable, Dec. 29, p 24
from electricity, Oct. 27, p 24
gilding, Nov. 24, p 24
proof materials, Tests of, Dec. 29, p 15
protection in foundries, Suggestions for, Sept. 8, pp 7, 9
protection of mills, Nov. 24, p 15
risk of electric lighting, Nov. 10, p 20; Dec. 8, p 14
risks and tall buildings, Dec. 8, p 11
test of iron shutters, Nov. 24, p 3
Fires in cities, Protection from, Sept. 15, pp 9, 11
Fireless locomotives, Francq's, Aug. 11, p 3
Fixed plane surface, The pressure of wind upon a, Oct. 13, p 17
Flanging boiler heads, Oct. 27, p 7
Fleuss breathing apparatus, The, Aug. 4, p 1
Flexible shafting, Novel use for, July 7, p 11
Flight of the albatross, Mode of, Nov. 24, p 1
Flint fire-bricks, Sept. 8, p 9
Floors, Slow-burning roofs and, Oct. 6, p 17
Florida, Railway progress in, Nov. 3, p 5
Fluctuations in tin plate, July 7, p 19
Fluid density of metals, The, Sept., 29, p 15
Fluorine in fluorspar, Free, July 7, p 22
Fluorspar, Free fluorine in, July 7, p 22
Foreign commerce of New Orleans, Aug. 11, p 9
iron markets, Nov. 24, p 14
iron trade in 1880 and 1881, The, Aug. 25, pp 3, 5
ore, The tariff in, Aug. 18, p 14
traffic, Opening Corea to, Dec. 1, p 14
trade statistics, Our, Sept. 1, p 14
Forest of Dean, Iron manufacture in the, Dec. 8, p 9
Forge, Hannibal's Field, Dec 22, p 24
in Europe, The Catalan, July 28, p 15
Form for rails, New, Sept. 29, p 26
Fossils in meteorites, Traces of, Sept. 8, p 11
Founding in brass, copper and bronze, The art of, Oct. 13, pp 3, 5, 7; 27, pp 3, 5, 7
Papers on practical, July 7, p 15; 21, p 3; 28, pp 7, 9; Aug. 11, p 5
The progress of a year in stove, Nov. 3, p 15
Foundry and machine company, The Southwark, Aug. 4, p 26
Foundries, Suggestions for fire protection in, Sept. 8, pp 7, 9
Fracture, Resistance of steel to, Nov. 10, p 9
Framed Ironwork, Dec 8, p 1
France, Armor plate trials in, Oct. 6, pp 3, 5
Boiler explosions in, Aug. 4, p 13
Francq's fireless locomotive, Aug. 11, p 3
Frankfort opera house, Gas engines at the, Nov. 24, p 15
Free fluorine in fluorspar, July 7, p 22
Freight blockade in the West, The, Oct. 27, p14
lines, Rivalry, Oct. 6, pp 14, 15
on Lake Superior ore, June 28, p 14
Freights, English, French and American coke fuel consumption and, July 7, p 14
French and American coke, fuel consumption and freights, English, July 7, p 14
iron works, Powerful machinery for, Dec. 29, p 9
capital in Canada, Sept. 22, p 14
railways, Sept. 8, p 26
shipping bounties, Oct. 6, p 14
Frost, Bursting of water pipes by, Dec. 28, p 24
Fuel consumption and freights, English, French and American coke, July 7, p 14
consumption in iron smelting, Sept. 29, p 13
consumption in the manufacture of pig iron, Oct. 6, p 11
economy in Great Britain, Pig iron manufacture and furnace, Oct. 6, p 13
for general consumption, Gaseous, Dec. 1, p 11
waste in furnace fires, Oct. 27, p 1
Furnace, An obstructed blast, July 14, p 5
at Warner, Hickman County, Tenn., Warner, Dec. 1, p 11
Bauxite in the puddling, Aug. 25, p 5
Crampton's rotary puddling, Dec. 1, p 28
fires, Fuel waste in, Oct. 27, p 1
for small articles, An annealing, July 14, p 1
fuel economy in Great Britain, Pig iron manufacture and, Oct. 6, p 13
scale, New, Dec. 22, p 17
slag for mine pillars, Sept. 29, p 15
Titanic ores in the blast, Dec. 8, p 1
Furnaces, Improvement in annealing, Dec. 15, p 3
Lease of three of the Reading Company's, Sept. 29, p 19
Furniture, Ancient door, Oct. 6, pp 1, 3
Sash and window, Dec. 8, p 26
Future Mexican cities, Oct. 6, p 5, 7
of copper, The, July 14, p 14
of the steel trade, The, July 7, p 14
Galvanometer, A recording, Oct. 13, p 17
Galvanoplastic hollow figures, Oct. 13, p 17
Gandini battery, The, July 7, p 22
Garnier dephosphorizing process, The, Aug. 18, p 1
Gas, Cost of electric lighting as compared with, Nov. 24, p 20
distribution in St. Louis, Heating, Dec. 1, p 15
engine, Clerk, Nov. 10, p 1
engine, New, Nov. 17, p 15
engine, The Ravel, July 7, p 1
engines at the Frankfort Opera House, Nov. 24, p 15
engines, Notable, Aug. 4, p 26
for gas motors, Cheap, Nov. 10, p 24
Heating, July 14, p 1
pipe, Steel and wrought iron, July 14, p 1
purification, Dry ammonia process for, Nov. 10, p 9
Steam heating and cheap, Oct. 13, pp 14, 15
Utilization of coke, Dec. 22, p 14
Gaseous explosion, Velocity of, Aug. 11, p 24
fuel for general consumption, Dec. 1, p 11
Gases in mines, Effects of confined, Dec. 29, p 3
Gathering rubber in Columbia, Sept. 1, p 26
Gear wheels of raw buffalo hide, Nov. 17, p 15
wheels, Steel-toothed, Oct. 20, p 3
Gelatine, Nobel's blasting, Sept. 22, p 17
General consumption, Gaseous fuel for, Dec. 1, p 11
Grant's statement of the resources of Mexico, Sept. 15, p 1
Geological survey of Alabama, Aug. 4, p 15
German emigration in the United States, Aug. 25, p 13
belve hammer, A new, July 21, p 13
iron trade, The, Sept. 22, p 20
ornamental casting, Dec. 8, p 1
Germany, English steam engines for, Nov. 17, p 17
Underground telegraphs in, Nov. 17, p 15
Germination, Effect of pressure on seed, Nov. 24, p 1
Gilding, Fire, Nov. 24, p 24
Girder, New form of cast iron, Nov. 24, p 15
Glass as a structural material, Nov. 17, p 3
bottles on the liquors contained therein, Effect of the color of, Nov. 10, p 9
by means of electricity, Engraving on, Dec. 15, p 1
Water, Nov. 10, p 9
Glue, Japanese, Sept. 8, p 9
Gogstad, The old Norse ship at, Aug. 4, p 11
Gold, An imitation of, Aug. 4, p 1
drain in its effect on Europe, Dec. 15, p 14
Gondolas, Stockholm iron, Sept. 1, p 15
Good cupola record, Dec. 22, p 15
Goods before delivery, Reclaiming, Dec. 15, p 5
Gothics and puddling rolls, Dec. 15, p 17
Government testing machine, Experiments with the, Dec. 8, p 13
Governor for water wheels, Weaver differential, Nov. 24, p 26
Graff, Bennett & Co., Burning of the Millvale (Pa.) mill of, Dec. 15, p 19
Grain export trade, Our, Oct. 20, p 26
Gravity, Separation of minerals of equal specific, Sept. 29, p 15
Gray pig irons, Carbon in white and, Dec. 29, p 26
Great Britain, Bessemer steel manufacture in, Oct. 6, p 13
Britain, Insurance against accidents in the iron trades of, Sept. 29, p 15
Britain, Pig iron manufacture and furnace fuel economy in, Oct. 6, p 13
Grindstone, Using the, July 7, p 30
Gun tube iron, English and American, July 7, p 19
Gutta Percha, An interesting property of, July 7, p 22
Hallett's antimony, Oct. 13, p 24
Hammel's field forge, Dec. 22, p 24
Hammer, The, Sept. 15, p 5
Handbook of useful tables, Aug. 4, p 15; Dec. 22, p 20
Hanover, Petroleum industry in, Dec. 29, p 11
Petroleum wells in, Sept. 15, p 7
Hardening of steel, The, July 14, p 1
Hardware in New Zealand, Sept. 1, p 3
New patterns in bronze, Dec. 8, p 19
The influence of American competition on English, Aug. 4, p 14
Harmet process, The, Aug. 25, p 5
Harrisburg, The mining engineers at, Nov. 3, p 15
Harrison's combination columns, Trials of, Dec 8, p 9
Hayti, Resources and trade of, Sept. 8, p 9
Head lamps for locomotives, Electric, Nov. 3, p 28
Heads, Flanging boiler, Oct. 27, p 7
Hearths and chimneys, Blast furnace, July 7, p 7
Subterranean, Nov. 24, p 26
upon vegetation, Effects of light and, Sept. 29, p 13
weakening of steel by, Nov. 10, p 9
Heating gas, July 14, p 1
gas distribution in St. Louis, Dec. 1, p 15
metallurgical furnaces with coal dust, Oct. 6, p 11
Overhead, Sept. 8, pp 5, 7
Hectograph, An improved, Sept. 1, p 1
Helve hammer, A new German, July 21, p 13
Hide, Gear wheels of raw buffalo, Nov. 17, p 15
High explosives in the blast furnace, The use of, Nov. 17, p 1
temperatures, Use of the calorimeter as a pyrometer for, July 7, p
Hill's sprag whiffl tree, July 14, p 13
History of a Delaware industrial enterprise, The, Aug. 4, p 15
of the copper smelting industry of Baltimore, The, Aug. 11, p 7
of the stove trade, Materials for a, July 7, p 15
Petroleum and its, Dec. 22, p 7
Holley on the basic process in the United States, A. L., Nov. 17, p 7
Hollow figures, Galvanoplastic, Oct. 13, p 17
Horizontal blowing engines at the Staveley Iron Works, Dec 22, p 1
tubular boilers, July 14, p 11
Hot-air engine, An improvement of the Lehman, Sept. 1, p 1
Hotel passages, Red lights for, Sept. 1, p 22
Hours of labor, Sept. 1, p 15
House painting, carriage painting and graining, Nov. 17, p 15
How to build a storage warehouse, Nov. 17, p 13
Hudson River Tunnel, New features in the, Aug. 4, p 13
William S., July 28, p 15
Huntington emery-wheel dresser, Dec. 15, p 9
Hydraulic machinery for steel works, On, Aug. 25, pp 1, 3
machinery on shipboard, Nov. 24, p 24
pressure, Bending copper pipes by, Nov. 24, p 25
pressure to force wheels on shafts, Application of, Oct. 13, p 19
riveting, Dec. 13, p 15
Hydrostatic pressure, Rupturing a boiler by, July 21, p 1
Ice, Bursting power of, Nov. 24, p 1
Imitation of gold, An, Aug. 4, p 1
Imitations of electric and magnetic actions, Mechanical, Nov. 24, p 13
Immense planer, Dec. 1, p 15
Importation of Spanish pyrites, The, Aug. 25, p 14
Imported Spanish iron ore, Sept. 22, p 5
Imports and consumption of iron for the fiscal year, Our, Sept. 8, p 14
for ten months of the fiscal year, Exports and, July 14, p 20
for the third quarter, Oct. 6, p 28
of metals, &c., at New York for three months, July 14, p 17
to San Francisco, Aug. 11, p 3
Improved automatic boiler feed, An, Aug. 11, p 1
bench clamp, Sept. 15, p 8
door spring, July 7, p 13
hectograph, An, Sept. 1, p 1
method of manufacturing aluminum, An, Sept. 1, p 1
roof bracket, Nov. 17, p 9; Dec. 22, p 17
spring-coiling machine, Dec. 8, p 9
shear for bar and round iron, Oct. 27, p 15
slide rule, Dec. 8, p 15
try square, Dec. 8, p 11
Universal force pumps, July 14, p 3
wire-rolling machine, An, Aug. 4, p 17
Improvement in wire rope, Nov. 24, p 1
in annealing furnaces, Dec. 15, p 3
in compasses, Nov. 10, p 11
in drop presses, Sept. 22, p 19
of the Lehman hot-air engine, An, Sept. 1, p 1
Improvements in planes, Oct. 6, p 3
in voltaic batteries, Sept. 8, p 11
Increase, The world's, Sept. 8, p 26
Increased consumption of spelter, The, Oct. 13, p 14.
Increasing the resistance of iron to tension, torsion and transverse strains, Oct. 20, p 9
traffic on the Suez Canal, Dec. 22, p 14
Indexing drawings and patterns, Method of arranging and, Aug. 25, pp 19, 20
India ink on paper, Process to fix, Oct. 13, p 17
Indicator, Fire-damp, Dec. 29, p 24
for ships, A new speed, Oct. 20, p 3
trials of pumps, Nov. 10, p 11
Induction telephone, Dolbear's, Sept. 8, p 11
Industrial arbitration, The example of, Sept. 8, p 14
arbitration in England, Dec. 1, p 14
enterprise, The history of a Delaware, Aug. 4, p 15
items, July 7, p 22; 14, p 19; 21, 17; 28, p 17; Aug. 4, p 19; 11, p 11; 18, p 24; 25, p 11; Sept. 1, p 19; 8, p 24; 15, p 17; 22, p 24; 29, p 17; Oct. 6, p 17; 13, p 11; 20, p 11; 27, p 9; Nov. 3, p 23; 10, p 24; 17, p 24; 24, p 11; Dec. 1, p 17, 8, p 17; 15, p 9; 22, p 11; 29, p 11
pursuits, Deaths from, Sept. 1, p 13
Industry, Census report on the copper, Nov. 3, p 26
in Hanover, Petroleum, Dec. 29, p 11
of the United States, Tin plate, Dec. 22, p 3
The pottery, Sept. 1, p 17
Industries of Russia, The steel and coal, Sept. 22, p 15
Classification of California, Aug. 25, p 13
New York, July 21, p 11
San Francisco, Aug. 11, p 7
Inferior alcohol, Rectification of, Oct. 13, p 19
Influence of American competition on English hardware, The, Aug. 4, p 14
of electric light on vegetation, Dec. 22, p 24
of sun spots upon temperature, Nov. 24, p 24
of Woehler's experiments on the design of structures in iron, The, Oct. 13, p 19
Instructions to salesmen, Nov. 17, p 13
Insurance against accidents in the iron trades of Great Britain, Sept. 29, p 15
in Philadelphia, Boiler, July 14, p 24
Mutual, Aug. 11, p 24
Internal taxation and the revenue reform theorists, Sept. 29, p 15
International Railroad Company, The Mexican Oriental, Interoceanic and, July 28, pp 11, 13
Iowa farmers and the barb fence wire patents, The, Sept. 22, p 15; Oct. 13, p 15
Ireland, The iron ores of, Oct. 6, p 11
Iridium for electric lamps, Nov. 24, p 1
Iron and steel, On the consumption of power for rolling, Aug. 18, p 1
and steel in France, The manufacture of finished, Aug. 25, pp 7, 9
and steel in warehouse, June 30, 1881, Stocks of foreign, Aug. 25, p 3
and steel, Colorado, Nov. 10, p 14
and steel, The qualities of, Oct. 6, p 9
and steel, Power consumption in rolling, Oct. 13, p 24
and steel by copper precipitates, Decorating, Oct. 13, p 17
Art castings in, July 28, p 24
Cold rolling of wire and fine, Oct. 13, p 17
Company, Montour, Nov. 10, p 1
contracts, The meaning of quality specifications in, July 14, p 14
deposits in Lapland, Sept. 15, p 11
English and American gun tube, July 7, p 19
exports, British, Sept. 29, p 15
Extraction of phosphorus from, Oct. 6, p 13
for the fiscal year, Our imports and consumption of, Sept. 8, p 14
for wood in car construction, The substitution of steel for iron and, July 14, p 24
founding, Dec. 22, p 20
framing for levels, Use of, Oct. 13, p 17
girder, New form of cast, Nov. 24, p 15
gondolas, Stockholm, Sept. 1, p 15
Improved shear for bar and round, Oct. 27, p 7
in a magnetized field, Deposition of copper on, Oct. 13, p 17
in buildings, Use of, Sept 15, p 3
in the construction of buildings, Uses of, Oct. 20, p 1
lighthouses, New, Oct. 6, p 17
making on the Tyne, Early, Sept. 1, p 1
manufacture in the Forest of Dean, Dec. 8, p 9
market and the outlook, The, Oct. 13, p 14
markets, Foreign, Nov. 24, p 14
mines of Madoc, Ontario, The, July 21, p 13
mines, Lake Superior, July 7, p 19
mining in the United States, Oct. 6, p 7
observatory for Boston, An, July 21, p 24
ore, Imported Spanish, Sept. 22, p 5
Ore per ton of, July 28, p 15
ore district, New, Dec. 8, p 17
ores and iron works in West Yorkshire, England, Dec. 29, p 5
ores of Ireland, The, Oct. 6, p 11
Iron ores, On roasting, Sept. 8, p 1
ships, The life of, Sept. 8, p 15
shutters, Fire test of, Nov. 24, p 3
sleepers, July 14, p 23
smelting, Fuel consumption in, Sept. 29, p 13
steamboats in New York Harbor, Sept. 15, p 14
steamships, American, July 14, p 13
surfaces, Preservation of, Nov. 17, p 15
The outlook for merchant, July 21, p 14
to tension, torsion and transverse strains, Increasing the resistance of, Oct. 20, p 9
trade abroad, The, Aug. 11, p 14
trade abroad, The state of the, Oct. 20, p 14
trade, Austrian, Dec. 15, p 3
trade in 1880 and 1881, The foreign, Aug. 25, p 3, 5
trade in 1880, Statistics of the American, Aug. 25, p 9; Sept. 1, pp 3, 5
trade prospects, British, Oct. 13, p 7
trade statistics, American, Aug. 11, p 14; Aug. 18, p 19
trade, The German, Sept. 22, p 20
worker and miner, The negro as an, July 28, p 14
workers, The charcoal, Sept. 15, p 15
Works, Bestwood, Dec. 15, p 15
works for breach of contract, Suing an, Dec. 29, p 3
works, Powerful machinery for French Dec. 29, p 9
Irondale case, The, July 28, p 15
Ironmonger diary and text book for 1882, Dec. 22, p 20
Ironwork, Framed, Dec. 8, p 1
Isthmus coaling stations, Sept. 22, p 15
Jamin's experiments with the electric candle in vacuum, Sept. 8, pp 11, 13
Japan, The manufacture of lacquer in, Sept. 1, p 13
Japanese bronze worker, A, Sept. 15, p 5
glue, Sept. 8, p 9
Join the ends of a band saw, To, Sept. 15, p 8
Joining of substances by pressure, The, Oct. 20, p 9
Jones & Laughlin's Chicago warehouse, Oct. 6, p 28
Journal box, New car, Dec. 29, p 13
of the Iron and Steel Institute, The, Aug. 18, p 15
Labe's, Cement for, July 21, p 3
Labor and capital, The profits of, July 28, p 12
Labor and wages, July 14, p 19; 21, p 19; 28, p 24; Aug. 4, p 26; 11, p 17; 18, p 13; Sept. 1, p 26; 8, p 20; 15, p 26; 22, p 15; 29, p 19; Oct. 6, p 23; 13, p 20; 20, p 26; 27, p 17; Nov. 3, p 28; 10, p 11; 17, p 17; Dec. 8, p 20; 15, p 13; 22, p 9; 29, p 24.
Hours of, Sept. 1, p 15
in Western mills, Non-union, July 21, p 19
Laboratories, Uses of asbestos in chemical, Nov. 3, p 1
Laborer, The tariff and the, Oct. 6, p 14
Lacquer, Elastic, Dec. 15, p 1
in Japan, The manufacture of, Sept. 1, p 13
Lagging for steam pipes, A, Oct. 13, p 17
Lake Superior iron mines, July 7, p 19
Superior ore, Freight on, July 28, p 14
Lamp, New safety, Dec. 15, p 1
Powerful, Nov. 10, p 11
Land error has been perpetrated, How a, Oct. 20, p 3
Landore, The Siemens direct process at, Aug. 25, p 5
Lapland, Iron deposits in, Sept. 15, p 11
Large deposit of dufrenite, A, July 7, p 22
deposit of sulphate of soda, A, Sept. 8, p 11
production at the Troy Steel Works, Nov. 10, p 14
Latest methods of submarine telegraph work, The, Sept. 1, pp 7, 9, 11
Lauth three high mill in Europe, The, Oct. 6, p 11
Law for England, A proposed patent, Aug. 25, p 14
in Pennsylvania, Enforcing the conspiracy, Oct. 27, p 15
of corporations, The, Oct. 27, p 1
Lay Haight torpedo boat, The, July 14, p 13
Laying wire underground, Aug. 11, p 14
Lead, The position of, Sept. 22, p 14
Leaders crossing sidewalks, Covering for gutters or, Sept. 15, p 7
Lease of three of the Reading Company's furnaces, Sept. 29, p 19
Lehman hot air engine, An improvement of the, Sept. 1, p 1
Lessons of the great tragedy, The, July 7, p 14
Levels, Use of iron framing for, Oct. 13, p 17
Liability of commercial agencies for false ratings, Dec. 15, p 14
Liberia, Patents in Turkey and, Sept. 29, p 5; Nov. 3, p 3
Resources of, July 14, p 17
Life of a car wheel, Nov. 3, p 5
of iron ships, The, Sept. 8, p 15
Light and heat upon vegetation, Effects of, Sept. 29, p 13
clock, A night, July 14, p 1
Lighthouses, New Iron, Oct. 6, p 17
Lighting of the steamship City of Rome, Oct. 27, p 26
Lightning on trees near telegraph wires, Effects of, Nov. 10, p 11
Limits of deep mining, The physical, Oct. 20, p 3
Lines, Underground telegraph, Nov. 17, p 14
Liquors contained therein, Effect of the color of glass bottles on the, Nov. 10, p 9
Litigation, The barb fence, Aug. 18, p 14; Sept. 8, p 15
Livadia, The, Sept. 15, p 24
Local Government Board and its work, The English, Oct. 20, p 7
Lock for registered mail pouches, New, Dec. 1, p 28
Locomotive, Francq's fireless, Aug. 11, p 3
Novel use for the, Dec. 8, p 26
practice, Tendencies in modern, Oct. 6, p 15
The original, Nov. 3, p 1
Locomotives, Electric head-lamp for, Nov. 3, p 28
London Fire Department, Nov. 24, p 24
underground railways, July 14, p 9
Lubricating oil, Purification of, Nov. 10, p 9
Lubricator, A new, Sept. 15, p 7
Luce Fils Et Rozan's process of desilverizing Lead, Sept. 22, p 15
"Lumber" from straw, Oct. 27, p 26
Luminiferous ether, The relative motion of the earth and, Aug. 11, p 1
Machine, A new testing, Nov. 3, p 26
Company, The Southwark Foundry and, Aug. 4, p 26
Experiments with the government testing, Dec. 8, p 13
Improved spring coiling, Dec. 8, p 9
Nabholz's riveting, Oct. 6, p 1
Parker dovetailing, Dec. 8, p 13
Refrigerating, Dec. 1, p 1
Steam chest seat milling, Dec. 29, p 1
tools, New, Nov. 3, p 1
Machinery, A Chinese estimate of American, Aug. 4, p 13
belts, Nov. 3, p 19
for French iron works, Powerful, Dec. 29, p 9
for steel works, On hydraulic, Aug. 25, pp 1, 3
having reciprocating parts, Counterbalancing of engines and other, Aug. 18, pp 7, 9, 11, 13
on shipboard, Hydraulic, Nov. 24, p 24
Ore-crushing, Dec. 8, p 9
Machines, New pit-bank weighing, Nov. 10, p 9
operated by electricity, Drilling, Dec. 15, p 1
Madoc, Ont., The iron mines of, July 21, p 13
Magnesia from sea water, Extracting, Sept. 15, pp 7, 9
Magnesium, Uses of chloride of, Nov. 10, p 9

Magnetic actions, Mechanical imitations of electric and, Nov. 24, p 1
storms, Sept. 22, p 19
Magnetized field, Deposition of copper on iron in a, Oct. 13, p 17
Magnets of identical strength, Making powerful, Sept. 15, p 7
Mail pouches, New lock for registered, Dec. 1, p 28
Making in Raleigh County, West Virginia, Coke, Dec. 8, p 3
powerful magnets of identical strength, Sept. 15, p 7
steel castings on a small scale, Sept. 8, p 24
Management and use of ropes, I, Dec. 15, p 7
Mandrel, An expanding, Nov. 3, p 13.
Manganese bronze, The durability and economy of, July 28, p 11.
in steel, On, July 14, p 24.
Manganiferous pig iron, A new coke for the production of, Oct. 6, p 11.
Manual of the railroads of the United States, Aug. 18, p 15.
Manufacture, Art and, July 28, pp 5, 7.
in Great Britain, Bessemer steel, Oct. 6, p 13
in the forest of Dean, Iron, Dec. 8, p 9.
in the South, Cotton, Dec. 1, p 14.
of Bessemer steel and steel rails in the United States, The, Nov. 3, p 1.
of finished iron and steel in France, The, Aug. 25, pp 7, 9.
of Lacquer in Japan, The, Sept. 1, p 13.
of pig iron, Fuel consumption in the, Oct. 6, p 11.
of Russia sheet iron, Sept. 8, pp 3. 5.
Manufactures in England, American, Sept. 1, p 26
Supremacy in, July 14. p 24.
The stamped ware, Oct. 20, p 17.
Manufacturing aluminum, An improved method of, Sept. 1, p 1.
Market and the outlook, The iron, Oct. 13, p 14
Course of the tin plate, Sept. 29, p 7; Oct. 27, p 15.
Markets, Foreign iron, Nov. 24, p 14.
Marland's improvements for utilizing the heat of boiler furnaces, Sept. 22, p 1.
Marvels in Electricity, Sept. 1, pp 11, 13.
Master mechanics, Oct. 13, p 9.
Matcher heads, Amesbury expansion, Oct. 6, p 5
Material, Glass as a structural, Nov. 17, p 5.
Tests of constructive, Oct. 13, pp 7, 9.
Materials, Tests of fire-proof, Dec. 29, p 15
Matter, A peculiar property of, Nov. 24, p 24.
Measuring solar heat on the crown of the Continent, Oct. 20, p 9.
Mechanical applications of electricity, Sept. 22, p 7.
engineering, Our progress in, Nov. 10, p 3.
engineering progress during the last fifty years, Retrospect of, Sept. 29, pp 1, 3.
imitations of electric and magnetic actions, Nov. 24, p 13.
Mechanics, Master, Oct. 13, p 9.
Schools to train, Nov. 10, p 16.
Meeting of the American Society of Mechanical Engineers, Annual, Nov. 10, p 17.
Meisterschaft system, The, Oct. 27, p 17
Merchant iron, The outlook for, July 21, p 14.
Mercury, The action of oxygen on, Sept. 15, p 11
Mersey Tunnel, Nov. 24, p 24.
Metal surfaces, Varnish on, Nov. 3, p 22.
The Boston decision on open hearth, Sept. 8, p 14.
work, Artistic sheet, Oct. 13, p 17.
work, Decorative cut, Sept. 8, p 26; Nov. 14, p 17.
Metallic wires, A new method of connecting, Oct. 13, p 19.
Metallurgical furnace with coal dust, Heating, Oct. 6, p 11
notes, July 14, p 24; Aug. 25, p 5; Sept. 15, p 11; 22, p 15; 29, p 15; Oct. 6, p 11; 13, p 24; 27, p 24; Nov. 3, p 11; 17, p 9; Dec. 1, p 26; 8, p 5; 22, p 1; 29, p 1
Metallurgy in Prussia, Sept. 29, pp 7, 9
of Nickel, Sept. 29, p 15
Metals, &c., at New York for three months, Imports of, July 14, p 17
and paint, July 7, p 19
and quicksilver, Production of precious, Nov. 3, p 14
in alloy, Separation of, Nov. 3, p 1
in the United Kingdom, Production of, Dec. 22, p 26
of the platinum group upon coal gas, The action of, July 7, p 22
The fluid density of, Sept. 29, p 15
Meteoric or cosmic dust, Oct. 20, p 7
Meteorites, Traces of fossils in, Sept. 8, p 11
Meter, Edison's electric, Dec. 22, p 24
Method of arranging and indexing drawings and patterns, Aug. 25, pp 19, 20
of blasting rocks under water, A new, Sept. 1, p 1
of connecting metallic wires, A new, Oct. 13, p 19
of manufacturing aluminum, An improved, Sept. 1, p 1
Methods of submarine telegraph work, The, Sept. 1, pp 7, 9, 11
Metrical abbreviations, Sept. 29, p 15
Mexican cities, Future, Oct. 6, pp 5, 7
Oriental, Interoceanic and International Railroad Company, The, July 28, pp 11, 13
Mexico, American trade in, Nov. 17, p 13
Gen. Grant's statement of the resources of, Sept. 15, p 1
Railways in, Dec. 15, p 14
Rising, Sept. 15, p 14
Trade with, Dec. 1, p 14
Trading in, Aug. 25, p 26
Microphone in observatories, The, Oct. 20, p 9
Middlesborough, The new steel works at, Aug. 11, p 24
Milan, The exhibition at, Aug. 4, p 11
Military tariff in Peru, The, Aug. 4, p 15
Mill, A new rotary stamp, Oct. 6, p 11
Milling machine, Steam chest seat, Dec. 29, p 1
An improved wire-rolling, Aug. 4, p 17
for rolling eye bars, An old, Aug. 4, p 17
in Europe, The Lauth three-high, Oct. 6, p 11
of Graff, Bennett & Co., Burning of the Millvale (Pa.) Dec. 15, p 19
Mills and factories, Fire protection in, Nov. 24, p 7; Dec. 1, p 3
Fire protection of, Nov. 24, p 15
Vibration of, Dec. 8, p 3
Mill's Directory of Boiler Owners and Steam Users for New York and New Jersey, 1881, Dec. 8, p 15
Millvale (Pa.) mill of Graff, Bennett & Co., Burning of the, Dec. 15, p 19
Mine pillars, Furnace slag for, Sept. 29, p 15
Miner, The negro as an ironworker and, July 28, p 14
Minerals of equal specific gravity, Separation of, Sept. 29, p 15
Mines, Effects of confined gases in, Dec. 29 p
Mining Engineers, American Institute of, Oct. 6, p 15
Engineers at Harrisburg, The, Nov. 3, p 15
in China, Coal, Dec. 29, p 1
in the United States, Iron, Oct. 6, p 7
The physical limits of deep, Oct. 20, p 3
Transmission of power by electricity in, Sept. 22, p 13
Minute workmanship, Nov. 3, p 13
Missouri Iron Company, The, July 21 p 24
Mode of flight of the albatross, Nov. 24, p 1
Modern architectural designs and details, Aug. 4, p 15
English rail finishing plant, A, July 28, p 1
locomotive practice, Tendencies in, Oct. 6, p 15
street architecture, July 7, p 13
Moist air, Electric conductivity of, Nov. 24, p 17
Molds for casting steel under pressure, Oct. 13, p 28
Money in England and the United States, The purchasing power of, Aug. 25, p 14
Monster crane, A, Oct. 13, p 19
Mont Blanc, A tunnel through, July 28, p 9
Montour Iron Company, Nov. 10, p 1
Motion of the earth and luminiferous ether, The relative, Aug. 11, p 1
Motor, A new, Sept. 15, p 7; Oct. 27, p 26; Nov. 17, p 15
A new small-power steam, Sept. 29, p 11
Motors, Cheap gas for gas, Nov. 10, p 24
Movement, The fair trade, Sept. 29, p 3
Mr. Morrell on steel blooms, Dec. 15, p 14
Mutual insurance, Aug. 11, p 14
Naoholz's riveting machine, Oct. 6, p 1
Nail works of the United States, The, Aug. 18, p 26
Nails, Sept. 22, p 20
National Association of Charcoal Iron Workers, The, Oct. 13, p 15; 20, p 15
convention of manufacturers to revise the tariff, Sept. 8, p 15
Tariff Convention, Dec. 1, p 15
Nation's bereavement, The, Sept. 22, p 14
"Naval brass," July 14, p 1
Navigation, Canal steam, Sept. 8, p 13
Negro and the Amalgamated Association, The, Aug. 18, p 14
as an iron worker and miner, The, July 28, p 14
New armor plate trial, Dec. 8, p 17
buildings, The Ansonia Clock Company's, July 21, p 24
car journal box, Dec. 29, p 13
coke for the production of manganiferous pig iron, A, Oct. 6, p 11
crucible for producing zinc, Sept. 15, p 7
developments in regard to the East River Bridge, Dec. 22, p 15
form for rails, Sept. 29, p 26
form of cast-iron girder, Nov. 24, p 15
form of screw jack, Sept. 22, p 4
form of tubular boiler, Oct. 13, p 1
furnace scale, Dec. 22, p 17
gas engine, Nov. 17, p 15
iron lighthouses, Oct. 6, p 17
iron ore district, Dec. 8, p 17
lock for registered mail pouches, Dec. 1, p 28
lubricator, A, Sept. 15, p 7
machine tools, Nov. 3, p 1.
method for blasting rocks under water, A, Sept. 1, p 1
method of connecting metallic wires, A, Oct. 13, p 19
motor, A, Sept. 15, p 7; Nov. 17, p 15
Orleans, Foreign commerce of, Aug. 11, p 9
patterns in bronze hardware, Dec. 8, p 19
phase of bi-metallism, July 14, p 17.
pit bank weighing machines, Nov. 10, p 9.
portable fire extinguisher, Dec. 29, p 24
publications, July 14, p 15; 21, p 15; Aug. 4, p 15; 11, p 9; 18, p 15; Oct. 27, p 17; Nov. 17, p 15; Dec. 1, p 28, 8, p 15; 22, p 20.
rotary stamp mill, A, Oct. 6, p 11.
safety lamp, Dec. 15, p 1.
small power steam motor, A, Sept. 29, p 11
steel plant, A, Nov. 3, p 5.
Tay bridge, Nov. 24, p 17.
Testing machine, A, Nov. 3, p 26.
theory of the cementation process, A, Aug. 25, p 7.
torpedo, Dec. 8, p 9.
York Assay Office, Bullion in the, July 21, p 15.
York for three months, Imports of metals, &c., at, July 14, p 17.
York harbor, Iron steamboats in, Sept. 15,
York industries, July 21, p 11.
York Steam Company's operation, The, Oct. 13, p 9.
York tariff convention, Dec. 8, p 14.
York tariff convention, Address of the, Dec. 8, p 15.
York trade and art schools, Sept. 22, p 3.
Zealand, Hardware in, Sept. 1, p 3.
Niagara, Utilizing, Aug. 25, p 13.
Nickel and cobalt, Welding, Sept. 15, pp 11, 13
Metallurgy of, Sept. 29, p 15.
table utensils, Oct. 13, p 17.
Night light clock, A, July 14, p 1.
Ninth Cincinnati Exposition, Sept. 15, p 24.
Nobel's blasting gelatine, Sept. 22, p 17.
Non-conduction, Dec. 8, p 17
Union labor in Western mills, July 21, p 19
Norse ship at Godstad, The old, Aug. 4, p 11.
Northeastern Steel Company, Limited, The, July 21, p 7.
"Not otherwise provided for" clause, The, Nov. 10, p 14.
Note on current dephosphorizing practice, A, Nov. 3, p 3.
Novel snow plow, Dec. 1, p 13.
use for flexible shafting, July 7, p 11.
use for the locomotive, Dec. 8, p 26.
Novelty Mfg. Co., Philadelphia, Aug. 25, p 26.
Obituary, July 28, p 15.
Observations of comet B, 1881, Spectroscopic, Aug. 11, p 1.
The Microphone in, Oct. 20, p 9.
Oil, Purification of lubricating, Nov. 10, p 9.
Old Norse ship at Gogstad, The, Aug. 4, p 11.
styles of weapons, Sept. 1, p 13.
On the use of blast furnace slags for filling old coal workings, July 7, p 13.
Open-hearth metal, The Boston decision on, Sept. 8, p 14.
hearth steel, The duty on, Aug. 4, p 14.
Opening Corea to foreign traffic, Dec. 1, p 14.
Opera house, Gas engines at the Frankfort, Nov. 24, p 15,
Operated by electricity, Drilling machines, Dec. 15, p 1.
Operations, The New York Steam Company's, Oct. 13, p 9
Ore-crushing machinery, Dec. 8, p 9
Determination of chromium in chrome iron, Oct. 13, pp 24, 26
district, New iron, Dec. 8, p 17
Freight on Lake Superior, July 28, p 14
of Rhode Island, The Iron Mine Hill, July 7, p 19
per ton of iron, July 28, p 15
The tariff on foreign, Aug. 18, p 14
Ores and iron works in West Yorkshire, England, Iron, Dec. 29, p 5
Better protection for American, Sept. 1, p 15
in the blast furnace, Titanic, Dec. 8, p 1
of Ireland, The iron, Oct. 6, p 11
On roasting iron, Sept. 8, p 1
Treating auriferous, Sept. 22, p 15
Washing and separating, Dec. 8, p 7
Origin of telegraphy, Nov. 10, p 17
Original locomotive, The, Nov. 3, p 1
Ornamental casting, German, Dec. 8, p 1
Outlets for American products, Dec. 29, p 9
for Connellsville coke, New, July 14, p 24
Outlook, The iron market and the, Oct. 13, p 14
Overhead heating, Sept. 8, pp 5, 7
Oxygen on mercury, The action of, Sept. 15, p 11
Ozone, Absorption of solar rays by atmospheric, Nov. 24, p 1
on germs contained in the air, Action of, Nov. 24, p 1
Paint and metals, July 7, p 19
Paper, Anti-tarnish, Sept. 1, p 26
boxes, Making and packing, Sept. 22, p 17
made from buffalo skin, Oct. 27, p 26
Process to fix India ink on, Oct. 13, p 17
Papers on practical founding, July 7, p 15; 21, p 3; 28, p 7; Aug. 11, p 5
Parabolic reflecting surfaces, Constructing, Nov. 10, p 9
Parker dovetailing machine, Dec. 18, p 13
Patent case, A curious, Aug. 18, p 20
law for England, A proposed, Aug. 25, p 14
pulverizer, Thompson's, Dec. 15, p 1
Patents in Turkey and Liberia, Sept. 29, p 5; Nov. 3, p 3
Iowa farmers and the barb fence wire, Sept. 22, p 15; Oct. 13, p 15
Patterns in bronze hardware, New, Dec. 3, p 19
Patterns, Method of arranging and indexing drawings and, Aug. 25, pp 19, 20
Pay-day in workshops, Aug. 11, p 20
Peculiar property of matter, Nov. 24, p 24.
Pennsylvania, Enforcing the conspiracy law in, Oct. 27, p 15
Railroad shops at Altoona, The, Aug. 18, p 11
Periodicity of rainy and dry seasons, The, Sept. 15, p 7
Peru, The military tariff in, Aug. 4, p 15
Petroleum and its history, Dec 22, p 7
industry in Hanover, Dec. 29, p 11
in Russia, Pumping, Dec. 1, p 9
Russian, Aug. 11, p 3
wells at Hanover, Sept. 15, p 7
Petroleum industry in Hanover, Dec. 29, p 11
Phase of bi-metallism, New, July 14, p 17
Phenomena on the telephone, Effects of some meteorological, Dec. 22, p 24
Philadelphia, Boiler insurance in, July 14, p 24
Novelty Mfg. Co., Aug. 25, p 26
The cotton tie case at, Oct. 27, p 14
Phœnix columns, Tests of, Aug. 25, p 26
Phosphor-bronze steam yacht, Dec. 15, p 1
bronze wire for telephones and telegraphy, Dec. 22, p 9
Phosphorescent alumina, Dec. 8, p 9
Phosphorus from iron, Extraction of, Oct. 6, p 13
Photo-electric currents, Dec. 29, p 1
Physical limits of deep mining, The, Oct. 20, p 3
Pig iron, Aug. 4, p 14
iron, A new coke for the production of manganiferous, Oct. 6, p 11
iron, Fuel consumption in the manufacture of, Oct. 6, p 11
iron manufacture and furnace-fuel economy in Great Britain, Oct. 6, p 13
irons, Carbon in white and gray, Dec. 29, p 26
Pile-driving cars, Aug. 11, p 17
Pillars, Furnace slag for mine, Sept. 29, p 15
Pipes by frost, Bursting of water, Dec. 29, p 24
by hydraulic pressure, Bending copper, Nov. 24, p 15
Pit-bank weighing machines, New, Nov. 10, p 9
Pitman and reciprocating parts combined, Aug. 18, p 11
A triangular, Aug. 18, pp 11, 13
Counterbalancing of, Aug. 18, p 11
Pittsburgh, Lexington and Atlantic Railroad, The, Aug. 4, p 16
New bridge at, Aug. 11, p 3
shovel factory, Destruction of a, Dec. 22, p 15
The coal situation at, Sept. 22, p 15
The experimental explosion at, July 14, pp 14, 15
Water Works, Another break at the, Dec. 22, p 9
Water Works engines, Dec. 29, p 14
Plane surface, The pressure of wind upon a fixed, Oct. 13, p 17
Planer, Immense, Dec. 1, p 15
Planes, Improvements in, Oct. 6, p 3
Plant, A new steel, Nov. 3, p 5
Platinum group upon coal gas, The action of metals of the, July 7, p 22
Plates, Compound armor, Oct. 20, pp 3, 5
Steel for ship, Dec. 15, p 1
Plow, Novel snow, Dec. 1, p 13
Pneumatic distribution of time, Sept. 29, p 13
Population, Our center of, July 28, p 19
wealth and debt, Comparative view of, Dec. 1, p 11
Portable battery, Dec. 22, p 24
fire extinguisher, New, Dec. 29, p 24
Position of lead, The, Sept 22, p 14
Postal telegraph project, The, Aug. 4, p 17
Posts for barbed-wire fences, Dec. 15, p. 26
Pottery industry, The, Sept. 1, p 17
Pouches, New lock for registered mail, Dec. 1, Sept. 22, p 13
consumption in rolling iron and steel, Oct. 13, p 24
of coal gas, The calorific, Sept. 1, p 15
of ice, Bursting, Nov. 24, p 1
of money in England and the United States, The purchasing, Aug. 25, p 14
steam motor, A new small, Sept. 29, p 11
The wind's, Aug. 11, p 13
Powerful derrick, A, Aug. 4, p 13
lamp, Nov. 10, p 11
machinery for French iron works, Dec. 29, p 9
Practice, A note on current dephosphorizing, Nov. 3, p 3.
Practical application of stored electricity, Oct. 20, p 26.
estimation of counter-balance weights, Aug. 18, p 7, 9.
founding, Papers on, July 7, p 15; 21, p 3; 28, p 7; Aug. 11, p 5.
lessons in architectural drawing, Dec. 8, p 15.
Precious metals and quicksilver, Production of, Nov. 3, p 14.
Present status of private brands in the tin plate trade, The, Sept. 1, pp 14, 15.
Preservation of iron surfaces, Nov. 17, p 15.
of wood, Nov. 17, p 15.
Pressure, Bending copper pipes by hydraulic, Nov. 24, p 15.
Molds for casting steel under, Oct. 13, p 13.
of wind upon a fixed plane surface, The, Oct. 13, p 17.
on seed germination, effect of, Aug. 24, p 1.
The joining of substances by, Oct. 20, p 9.
Prevention of smoke, Apparatus for the, July 28, p 20.
Prices, Wholesale, July 7, pp 40, 42, 43, 47, 48; 14, pp 28, 30, 31, 35, 36; 21, pp 28, 30, 31, 35, 36; Aug. 4, pp 36, 38, 39, 43, 44; 11, pp 28, 30, 31, 35, 36; 18, pp 28, 30, 31, 35, 36; 25, pp 28, 30, 31, 35, 36; Sept. 1, pp 36, 38, 39, 43, 44; 8, pp 28, 30, 31, 35, 36; 15, pp 28, 30, 31, 35, 36; 22, pp 28, 30, 31, 35, 36, 29, pp 28, 30, 31, 35, 36; Oct. 6, pp 36, 38, 39, 43; 44; 13, pp 28, 30, 31, 35, 36; 20, pp 28, 30, 31, 35, 36; 27, pp 28, 30, 31, 35, 36; Nov. 3, pp 38, 39, 40, 45, 46; 10, pp 28, 30, 31, 35, 36; 17, pp 28, 30, 31, 35, 36; 24, pp 28, 30, 31, 35, 36; Dec. 1, pp 38, 39, 40, 45, 46; 8, pp 30, 31, 32, 37, 38; 15, pp 30, 31, 32, 37, 38; 22, pp 28, 30, 31, 35, 36; 29, pp 28, 30, 31, 35, 36
Private brands in the tin plate trade, The present status of, Sept. 1, p 14.
brands of tin plate, Nov. 10, p 13.
Prizes to Americans at the Electrical Exhibition, Oct. 27, p 13.
Process for gas purification, Dry ammonia, Nov. 11, p 9.
in the United States, A. L. Holley on the basic, Nov. 17, p 7.
in the United States, Basic, Nov. 17, p 15.
Mr. Reese and the basic, Dec. 29, p 14
of desilverizing lead, Luce Fils et Rozan's, Sept. 22, p 15.
The Siemens direct, Dec. 29, p 14
to fix India ink on paper, Oct. 13, p 17.
Producing zinc, A new crucible for, Sept. 15, p 7
Production at the Troy Steel Works, Nov. 10, p 15.
of metals in the United Kingdom, Dec. 22, p 26.
of precious metals and quicksilver, Nov. 3, p 14.
Products, Outlets for American, Dec. 29, p 9
Profits of labor and capital, The, July 28, p 11.
Progress during the last fifty years, Retrospect of mechanical engineering, Sept. 29, p 1
in Florida, Railway, Nov. 3, p 15.
in mechanical engineering, Our, Nov. 10, p 3.
of a year in stove founding, The, Nov. 3, p 15.
of England and America, The economic, July 21, p 7.
Project, The postal telegraph, Aug. 4, p 17.
Propelled by air, Canal boat, Nov. 10, p 26.
Property in Tennessee, Large transfer of, July 21, p 24.
of gutta percha, An interesting, July 7, p 22.
of matter, A peculiar, Nov. 24, p 24.
Proposed change in the Brazilian tariff, Aug. 25, p 15.
patent law for England, Aug. 25, p 14.
revision of the Austrian tariff, Dec. 22, p 14
Propulsion of boats by electricity, The, July 7, p 22.
Prospects, British iron trade, Oct. 13, p 7,
of the corn crop, Aug. 25, p 13.
Trade, Sept. 8, p 14.
Wheat, Aug. 4, pp 9, 11.
Protection for American ores, Better, Sept. 1, 15.
from fires in cities, Sept. 15, pp 9, 11.
in mills and factories, Fire, Nov. 24, p 7; Dec. 1, p 3.
of mills, Fire, Nov. 24. p 15.
The South and, Nov. 10, p 14.
Provincial Exhibition, The Canadian, Sept. 29, p 26.
Prussia, Metallurgy in, p Sept. 29, pp 7, 9.
Public documents, Dec. 8, p 14.
Puddling furnace, Bauxite in the, Aug. 25 p 5.
furnace, Crampton's rotary, Dec. 1, p 28.
rolls, Gornics and, Dec. 15, p 17
Pulverizer, Thompson's patent, Dec. 15, p 1.
Pump, The Red Jacket, Aug. 4, p 22.
Pumps, American and English, Aug. 4. p 19.
English and American, July 14, p 15; Sept. 8, p 14; 15, pp 15, 24.
Improved Universal force, July 14, p 8.
Indicator trials of, Nov. 10, p 11.
Pumping petroleum in Russia, Dec. 1, p 9.
Purchasing power of money in England and the United States, The, Aug. 25, p 14.
Purification, Dry ammonia process for gas, Nov. 10, p 9.
of lubricating oil, Nov. 10, p 9.
Pyrenees, Tunneling the, Dec. 8, p 11.
Pyrites, The importation of Spanish, Aug. 25, p 14.
Pyrometer for high temperatures, Use of calorimeter as a, July 7, p 1.
Quality of steam, The, Aug. 4, p 3, 5, 7.
specifications in iron contracts, The meaning of, July 14, p 14.
Qualities of iron and steel, The, Oct. 6, p 9.
Quicksilver, Production of precious metals and, Nov. 3, p 14.
trade, July 28 p 20.
Radiophony, Nov. 24, p 20
Rail trade since 1880, The, Sept. 15, pp 1, 3
Rails, A strange experience with steel, Oct. 13, p 17
in the United States, The manufacture of Bessemer steel and steel, Nov. 3, p 1
New form for, Sept. 29, p 26
Railroad, A new trunk line, Oct. 27, p 14
system of the United States, Aug. 4, p 9
Tehuantepec, Nov. 17, p 3
The Tehuantepec, July 14, p 3
war, The, Aug. 4, p 15
Railroads, Compressed air on the elevated, Nov. 3, p 17
of the United States, Steel rails on the, July 28, p 13
vs. canals, Dec. 29, p 3
Railway building, Excessive, Oct. 13, pp 9, 13
progress in Florida, Nov. 3, p 15
trains, Electric light in, Dec. 29, p 9
Railways, French, Sept. 8, p 26
in Mexico, Dec. 15, p 14
Rainy and dry seasons, The periodicity, Sept. 15, p 7
Raleigh County, W. Va., Coke making in, Dec. 8, p 3
Rates of wages in America, Dec. 29, p 11
on canal shipments, The effect of low rail, July 28, p 19
Ravel gas engine, The, July 1, p 1
Raw buffalo hide, Gear wheels of, Nov. 17, p 15
Reactions in the Bessemer process, the charge containing but a small percentage of manganese, The chemical, Nov. 3, pp 7, 9, 11
Reading Company's furnaces, Lease of three of the, Sept. 29, p 19
Recent comets, Spectra of the two, Dec. 8, p 9
trade mark enactments, Sept. 8, pp 17, 19, 20
Reciprocating parts, Counter-balancing of, Aug. 18, p 9
Reclaiming goods before delivery, Dec. 15, p 5
Record, Good cupola, Dec. 22, p 15
Recorder, An electrical, Oct. 20, p 13
Recording galvanometer, A, Oct. 13, p 17
Rectification of inferior alcohol, Oct. 13, p 19
Red Jacket pump, The, Aug. 4, p 22
lights for hotel passages, Sept. 1, p 23
Reese and the basic process, Mr., Dec. 29, p 14
Refrigeration machine, Dec. 1, p 1
Register, A cash, Aug. 11, p 24
Registered mail pouches, New lock for, Dec. 1, p 23
Relative motion of the earth and luminiferous ether, The, Aug. 11, p 1
Remove rusted bolts, To, Nov. 17, p 26
Report on the copper industry, Census, Nov. 3, p 26
Reports of the bankers' convention, Extracts from the, Sept. 1, p 15
on American commerce and trade, Recent consular, July 28, p 13
Representations to a commercial agency, False, Oct. 27, p 17
Resistance of iron to tension, torsion and transverse strains, Increasing the, Oct. 20, p 9
of steel to fracture, Nov. 10, p 9
Resolutions, Tariff convention, Dec. 15, p 15
Resources and trade of Hayti, Sept. 8, p 9
of Liberia, July 14, p 17
of Mexico, Gen. Grant's statement of the, Sept. 15, p 1
Responsibility of directors, Dec. 15, p 14.
Restoration of an ancient aqueduct, Sept. 8, p 11
Retrospect of mechanical engineering progress during the last fifty years, Sept. 29, pp 1, 3
Revenue reform theorists, Internal taxation and the, Sept. 29, p 15
Reversing filters, Dec. 22, p 14
Revision of the Austrian tariff, Proposed, Dec. 22, p 14
Revival in Spain, Commercial, Dec. 29, p 14
Rhode Island, The Iron Mine Hill ore of, July 7, p 19
Ring plates for boilers, Weldless, Oct. 6, p 11
Rise in copper, The, Oct. 6, p 14
Rising Mexico, Sept. 15, p 14
Risk of electric lighting, Fire, Nov. 10, p 20; Dec. 8, p 14
Risks and tall buildings, Fire, Dec. 8, p 11
Rival freight line, Oct. 6, pp 14, 15
Riveting, Hydraulic, Dec. 15, p 15
machine, Naoholz's, Oct. 6, p 1
Set, July 7, p 9
Roasting iron ores, On, Sept. 8, p 1
Roberts, Col. Milner W., July 28, p 15
Rock drills, Competitive test of, Nov. 10, p 26
Rocks under water, Blasting, Dec. 29, p 13
Rolled cast steel car wheels, Aug. 11, p 15
Rolling iron and steel, Power consumption in, Oct. 13, p 24
of wire and fine iron, Cold, Oct. 13, p 17
Rolls for bending boiler plate, Vertical, Sept. 1, p 1
Gornics and puddling, Dec. 15, p 17
Roof bracket, Improved, Nov. 17, p 9; Dec. 22, p 17
Roofs and floors, Slow-burning, Oct. 6, p 17
Room, "Common Sense" drying, Nov. 17, p 7
Rooms, Dry, Nov. 24, p 3
Rope, Improvement on wire, Nov 24, p 1
Ropes, Management and use of, Dec. 15, p 7
Testing wire, Nov. 3, p 13
Rotary puddling furnace, Crampton's, Dec. 1, p 28
Stamp mill, A new, Oct. 6, p 11
Rubber, Discovery in the vulcanization of, Sept. 22, p 17
in Columbia, Gathering, Sept. 1, p 26
Rules for centrifugal force, Aug. 18, p 7
in Cuba, New customs, Sept. 8, p 15
Rulings, Steel blooms and the Treasury, Nov 17, p 14
Russia, Business and trade in, July 14, p 9
Coal in, Dec. 1, p 1
Pumping petroleum in, Dec. 1, p 9
sheet iron, The manufacture of, Sept. pp 3, 5
Steel plates in, July 14, p 24
The steel and coal industries of, Sept. 29, p 15
Russian petroleum, Aug. 11, p 3
Rusted bolts, To remove, Nov. 17, p 26
Rylands' Iron, Steel and Tin-plate Trades Directory, July 14, p 15
St. Charles Bridge, Dec. 22, p 15
St. Louis Fair, Oct. 20, p 17
Heating gas distribution in, Dec. 1, p 15
River Convention, The, Sept. 8, p 15
Tunnel, Ventilating the, July 7, p 19
Safe, An immense, Oct. 13, p 19
Safety boiler, The Duplex, July 21, p 1
lamp, A new, Dec. 15, p 1
lamp, Filtered air, Dec. 8, p 7
Salesman, Instructions to, Nov. 17, p 18
Samson fence wire stretcher, Dec. 1, p 11
San Francisco, Exports from, Sept. 29, p 21
Imports to, Aug. 11, p 3
industries, Aug. 11, p 7
Sash and window furniture, Dec. 8, p 26
Satellites, Comparative brightness of, Dec. 29, p 24
Scale, New furnace, Dec. 22, p 17
Scales, Sliding, July 14, p 15
Schools to train mechanics, Nov. 10, p 17
Science, Doubtful, Dec. 8, p 11
Scientific and technical, July 7, p 22; 14, p 1; Aug. 4, p 1; 11, p 1; Sept. 1, p 1; 8, p 11; 15, p 7; 22, p 17; 29, p 13; Oct. 13, p 17; 20, p 9; 27, p 26; Nov. 3, p 13; 10, p 9; 17, p 15; 24, p 1; Dec. 8, p 7; 15, p 1; 22, p 24; 29, p. 24
Scranton, The new Bessemer plant at, Oct. 27 p 7
Screw jack, New form of, Sept. 23, p 5
Sea water, Extracting magnesia from, Sept. 15, pp 7, 9
Seed germination, Effect of pressure on, Nov. 24, p 1
Semi-portable compound engine, Nov. 24, p 1
Senator Voorhees on the tariff, Nov. 3, p 15
Separating ores, Washing and, Dec. 8, p 7
Separation of metals in alloy, Nov. 3, p 1
of minerals of equal specific gravity, Sept. 29, p 15
Set Riveting, July 7, p 9
Shafting, Novel use for flexible, July 7, p 11
Shafts, Application of hydraulic pressure to force wheels on, Oct. 13, p 19
Shear for bar and round iron, Improved, Oct. 27, p 7
Sheared surfaces, Corrosion on, Sept. 15, p 7
Shears, Steam, Oct. 27, p 1
Sheet iron, The use of thin, Oct. 20, pp 5, 7
metal work, Artistic, Oct. 13, p 17
metal work in architectural finish, Treatment of, Aug. 4, p 26
Shinn, Wm. P. & Co., Nov. 24, p 24
Ship at Gogstad, The old Norse, Aug. 4, p 11
plates, Steel for, Dec. 15, p 1
Shipboard, Hydraulic machinery on, Nov. 24, p 24
Shipping bounties, French, Oct. 6, p 14
in 1880, British, Aug. 11, p 17
Ships, A new speed indicator for, Oct. 20, p 3
Shovel factory, Destruction of a Pittsburgh, Dec. 22, p 15
Shutters, Fire test of iron, Nov. 24, p 3
Sidewalks, Covering for gutters or leaders crossing, Sept. 15, p 7
Siemens direct process at Landore, The, Aug. 25, p 5
direct process, The, Dec. 29, p 14
Signals, Telegraphic codes and, Sept. 29, p 24
Silver coinage and circulation, Sept. 8, p 9
Single cylinder vs. compound engines, July 21, p 9
Skin, Paper made from buffalo, Oct. 27, p 26.
Slag for mine pillers, Furnace, Sept. 29, p 15.
Slags for filling old cold workings, On the use of blast furnace, July 7, p 13.
Sleepers, Iron, July 14. p 23.
Sliding scale in the North of England, The, Aug. 25, p 20.
Sliding scales, July 14, p 15.
Slow-burning roofs and floors, Oct. 6, p 17.
Small articles, An annealing furnace for, July 14, p 1.
power steam motor, A new, Sept. 29, p 11.
Smelting, Fuel consumption in iron, Sept. 29, p 13.
Smoke, Apparatus for the prevention of, July 28, p 20.
Snow plow, Novel, Dec. 1, p 13.
Society of Mechanical Engineers, The American, Oct. 20, p 14.
Solar heat on the crown of the Continent, Measuring, Oct. 20, p 9.
rays by atmospheric ozone, Absorption of, Nov. 24, p 1.
Solidifying, expansion of cast iron while, Oct. 13, p 17.
South America, The cable to, Dec. 29, p 18
and protection, The, Nov. 10, p 14.
Cotton manufacture in the, Dec. 1, p 14.
Southwark Foundry and Machine Company, The, Aug. 4, p 26
Spain, commercial revival in, Dec. 29, p 14
Spanish iron ore, Imported, Sept. 22, p 5.
pyrites, The importation of, Aug. 25, p 14.
Spectra of the two recent comets, Dec. 8, p 9.
Spectroscopic observations of comet B, 1881, Aug. 11, p 1.
Speed indicator for ships, A new, Oct. 20, p 3.
of thought, The, Aug. 11, p 1.
Spelter, The increased consumption of, Oct. 13, p 14.
Spiegeleisen production, The chemistry of, Sept 29, pp 9, 11.
Spots upon temperatures, Influence of sun, Nov. 24, p 24.
Spring rolling machine, Improved, Dec. 8, p 9.
Improved door, July 7, p 13.
whiffletree, Holt's July 14, p 13.
Springs, Anderson on, July 28, pp 3, 5.
The effect of barometric pressure on the discharge of, Oct. 13, p 19
Stamp mill, A new rotary, Oct. 6, p 11.
Stamped Ware Association, The, Oct. 27. p 24
ware manufactures, The, Oct. 20, p 17.
Stamping and drawing press, New double action, July 28, p 9.
State of the iron trade abroad, The, Oct. 20, p 14.
Statement of the resources of Mexico, Gen. Grant's, Sept. 15, p 1.
Statistics, American iron trade, Aug. 11, p 14
18, p 19.
of the American iron trade in 1880, Aug. 25, p 9; Sept. 1, p 3.
Our foreign trade, Sept. 1, p 14.
Steam coal, Nov. 3, p 15.
Status of private brands in the tin plate trade, The present, Sept. 1, pp 14, 15.
Staverly Iron Works, Horizontal blowing engines at the, Dec. 22, p 1.
Steam boiler explosions, Decomposition theory of, Dec. 15, p 7.
chest seat milling machine, Dec. 29, p 1
engine, A 2500 horse power, Nov. 3, p 1.
engines, Competitive tests of, Sept. 29, p 14
engines for Germany, English, Nov. 17, p 17.
F. Brocq's apparatus for determination of water held in suspension by, Sept. 29, p 1.
heating and chain gas, Oct. 13, p 14
heating for buildings, Dec. 1, p 28
launches, Trial of, Sept. 8, p 13
motor, A new small power, Sept. 29, p 11
navigation, Canal, Sept. 8, p 13

Steam pipes, A lagging for, Oct. 13, p 17
shears, Oct. 27, p 1
The quality of, Aug. 4, pp 3, 5, 7
yacht, Phosphor-bronze, D c. 15, p 1
Steamboats in New York Harbor, Iron, Sept. 15, p 14
Steamer City of Rome, The new, Sept. 22, p 3
Faraday, The cable, Sept. 1, p 1
Steamship City of Rome, Lighting the, Oct. 27, p 26
City of Rome, The new, July 7, p 30
Steamships, American iron, July 14, p 13
Three great, Oct. 27, p 14
Steel and coal industries of Russia, The, Sept. 22, p 15
and wrought iron gas pipe, July 14, p 1
Automatic rolls for making, July 28, p 1
axles, Cored, Dec. 8, p 19
bloom decision, The, Sept. 15, p 14
blooms, Nov. 24, p 14
blooms and the Treasury rulings, Nov. 17, p 14.
blooms, Mr. Morrell on, Dec. 15, p 14
by copper precipitates, Decorating iron and, Oct. 13, p 17
by heat, Weakening of, Nov. 10, p 9
Carbon in, Nov. 3, p 26
castings, On, Aug. 4, pp 7, 9
castings on a small scale, Making, Sept. 8, p 24
Colorado iron and, Nov. 10, p 14
for ship plates, Dec. 15, p 1
for the Brooklyn Bridge, Oct. 20, p 26
in France, The manufacture of finished iron and, Aug. 25, pp 7, 9
in warehouse, June 30th, 1881, Stocks of foreign iron and, Aug. 25, p 3
On manganese in, July 14, p 24
On the consumption of power for rolling iron and, Aug. 18, p 1
pin in a cast-iron cross head, A, Oct. 13, p 19
plant, A new, Nov. 3, p 5
plates in Russia, July 14, p 24
Power consumption in rolling iron and, Oct. 13, p 24
rails, A strange experience with, Oct. 13, p 17
rails from blooms, Cost of rolling, Aug. 18, p 14
rails in the United States, The manufacture of Bessemer steel and, Nov. 3, p 1
rails on the railroads of the United States, July 28, p 13
Tempering, Oct. 27, p 24
The duty on open-hearth, Aug. 4, p 14
The Eaton basic, Aug. 25, p 7
The hardening of, July 14, p 1
The qualities of iron and, Oct. 6, p 9
to fracture, Resistance of, Nov. 13, p 9
toothed gear wheels, Oct. 20, p 3
trade, The future of the, July 7, p 14
under pressure, Molds for casting, Oct. 13, p 23
works at Middlesborough, The new, Aug. 11, p 24
works, Colorado's first, Aug. 11, p 3
works, On hydraulic machinery for, Aug. 25, pp 1, 3
Steering vessels by electricity, Oct. 13, p 17
Stockholm iron gondolas, Sept. 1, p 15
Stocks of foreign iron and steel in warehouse June 30, 1881, Aug. 25, p 3
Stokes, James, Death of, Aug. 4, p 26
Stone, Testing the durability of, Aug. 11, p 1
Stoppers for combustion tubes, Asbestos, Nov. 24, p 1
Storage warehouse, How to build a, Nov. 17, p 13
Stored electricity, Practical application of, Oct. 20, p 26
Storms, Magnetic, Sept. 22, p 19
Thunder, Sept. 8, p 11
Stove founding, The progress of a year in, Nov. 2, p 15
trade, Materials for a history of the, July 7, p 15
Straw-burning boiler, A, Aug. 4, p 1
"Lumber" from, Oct. 27, p 26
Street architecture, Modern, July 7, p 13
Strength, Making powerful magnets of identical, Sept. 15, p 7
Stretcher, Samson fence-wire, Dec. 1, p 11
Strike, Chainmakers', Dec. 29, p 13
The Cincinnati, July 7, p 15; 14, p 19.
Structural material, Glass as a, Nov. 17, p 5
Structures in iron, The influence of Woehler's experiments on the design of, Oct. 13, p 19
Subaqueous boring, Apparatus for, Dec. 15, p 1
Submarine telegraph work, The latest methods of, Sept. 1, pp 7, 9, 11
tunneling, Aug. 18, p 14
Substances by pressure, The joining of, Oct. 20, p 9
Substitution of steel for iron and iron for wood in car construction, The, July 14, p 24.
Subterranean heat, Nov. 24, p 26
Suez Canal, Increasing traffic on the, Dec. 22, p 14
Canal, The, July 28, p 26
Suggestions for fire protection in foundries, Sept. 8, pp 7, 9
Suing an iron works for breach of contract, Dec. 29, p 3
Sulphate of soda, A large deposit of, Sept. 8, p 11
Sun electric light, The, Aug. 4, p 1
Sun spots upon temperature, Influence of, Nov. 24, p 24
Superstructure of the East River Bridge, Fabrication of, Sept. 22, pp 9, 11
Surfaces, Constructing parabolic reflecting, Nov. 10, p 9
Corrosion on sheared, Sept. 15, p 7
Varnish on metal, Nov. 3, p 22
Table utensils, Nickel, Oct. 12, p 17
Tall buildings, Fire risks and, Dec. 8, p 11
Tamaqua, The burning coal mine at, Aug. 11, p 1
Tariff and the laborer, The, Oct. 6, p 14
arguments from English sources, July 7, p 14
convention, Address of the New York, Dec. 8, p 15
convention, National, Dec. 1, p 15
convention, New York, Dec. 8, p 14
convention resolutions, Dec. 15, p 15
conventions, Coming, Nov. 18, p 14
in Peru, The military, Aug. 4, p 15
National convention of manufacturers to revise the, Sept. 8, p 15
on foreign ore, The, Aug. 18, p 14
Proposed change in Brazilian, Aug. 25, p 15
Proposed revision of the Austrian, Dec. 22, p 14
Senator Voorhees on the, Nov. 3, p 15
Taxation and the revenue reform theorists, Internal, Sept. 29, p 15
Tay Bridge, New, Nov. 24, p 17
Tehuantepec Railroad, The, July 14, p 3; Nov. 17, p 13
Telegraph project, The postal, Aug. 4, p 17
Underground lines of, Sept 22, p 17
war, The coming, Sept. 22, p 14
wires, Effects of lightning on trees near, Nov. 10, p 11
work, The latest methods of submarine, Sept. 1, p 7, 9, 11
Telegraphic codes and signals, Sept. 29, p 4
Telegraphs in Germany, Underground, Nov. 17, p. 15
Subterranean, July 28, p 14
Telegraphy, Phosphor-bronze wire for telephones and, Dec. 22, p 9
Origin of, Nov. 10, p 17
Telephone, Dolbear's induction, Sept 8, p 11
Effects of some meteorological phenomena on the, Dec. 22, p 24
Telephones and telegraphy, Phosphor bronze wire for, Dec. 22, p 9
Temperature, Influence of sun spots upon, Nov. 24, p 24
Tempering steel, Oct. 27, p 24
Tennessee, Large transfer of property in, July 21, p 24
Tensile strength, Elastic limit vs., Aug 11, p 14
Tension, torsion and transverse strains, Increasing resistance of iron to, Oct. 20, p 9
Test for carbon, The Eggertz, Sept. 15, p 13
of a ventilating apparatus, Sept. 29, p 26
of cast iron cylinders, Aug 18, 26
of constructive material, Oct. 13, pp 7, 9
of iron shutters, Fire, Nov. 24, p 3
of Phœnix columns, Aug. 25, p 26
of rock drills, Competitive, Nov. 10, p 26
of stem engines, Competitive, Sept. 29, p 14
Testing machine, A new, Nov. 3, p 26
machine, Experiments with the government, Dec. 8, p 13
underground wires, Nov. 10, p 1
wire ropes, Nov. 3, p 13
Tests of fire-proof materials, Dec. 29, p 15
Texas, The development of, Sept. 8, p 24
Theorists, Internal taxation and the revenue reform, Sept. 29, p 15
Theory of steam boiler explosions, Decomposition, Dec. 15, p 1
of the cementation process, A new, Aug. 25, p 7
Thermograph, A new, Oct. 13, p 23
Thermometers, July 7, p 3
Thin sheet iron, The use of, Oct. 20, pp 5, 7
Thomas Gilchrist process in Bohemia, The, Sept. 15, p 13
Thompson's patent pulverizer, Dec. 15, p 1.
Thought, The speed of, Aug. 11, p 1.
Thunder storms, Sept. 8, p 11.
Tie lease at Philadelphia, The cotton, Oct. 27, p 14.
Time, Pneumatic distribution of, Sept. 29, p 13.
Tin market, Developments in the, Sept. 29, p 14.
plate, Fluctuations in, July 7, p 19.
plate industry of the United States, Dec. 22, p 3.
plate market, The course of the, Sept. 29, p 7; Oct. 27, p 15.
plate, Private brands of, Nov. 10, p 13.
plate trade, The, Sept. 29, p 26
plate trade, The present status of private brands in the, Sept. 1, pp 14, 15.
Titanic ores in the blast furnace, Dec. 8, p 1.
Tool dressing, Nov 24, p 3.
Tools, American art in, Oct. 6, p 17.
New machine, Nov. 3, p 1.
Torpedo boat Alarm, The, Aug. 4, p 15.
boat, The Lay-Hught, July 14, p 13.
boats, Two new, July 21, p 13.
New, Dec. 8, p 2.
ram Alarm, Trip of the, Sept. 8, p 20.
Torsion and transverse strains, Increasing the resistance of iron to tension, Oct. 20, p 9
Towle, Hamilton E., Oct. 13, p 15.
Traces of fossils in meteorites, Sept. 8, p 11.
Trade abroad, The iron, Aug 11, p 14
abroad, The state of the iron, Oct. 20, p 14.
accounts, Oct. 27, pp 14, 15.
and art schools, New York, Sept. 22, p 3.
Austrian iron, Dec 15, p 3.
condition of the building, July 14, p 15.
England's adverse balance of, Nov. 3, p 14.
in 1880-81, Our, Aug. 4, p 14.
in Mexico, American, Nov. 17, p 13.
in Russia, Business and, July 21, p 11.
mark enactments, Recent, Sept. 8, pp 17, 19, 20; 15, p 15; 22, p 13.
Materials for a history of the stove, July 7, p 15.
of Cincinnati, Coal, Dec. 15, p 19.
of Hayti, Resources and, Sept. 8, p 9.
Our grain export, Oct. 20, p 26.
prospects, Sept. 8, p 14.
Quicksilver, July 28, p 20.
Recent consular reports on American commerce and, July 28, p 13
report, July 7, pp 25, 26, 27, 28, 30; 14, pp 21, 22, 23; 21, pp 21, 22, 23, 24; 28, pp 21, 22, 23, 24; Aug. 4, pp 23, 24, 25, 26; 11, pp 21, 22, 23, 24; 18, pp 21, 22, 23, 24; 25, pp 21, 22, 23, 24, 26; Sept. 1, pp 23, 24, 25, 26; 8, pp 21, 22, 23, 24; 15, pp 21, 22, 23, 24; 22, pp 21, 23, 23, 24, 25; 29, pp 21, 22, 23, 24; Oct. 6, pp 23, 24, 25, 26; 13, pp 21, 22, 23; 20, pp 21, 22, 23, 24; 27, pp 21, 22, 23, 24; Nov 3, pp 23, 24, 25, 26; 10, pp 21, 22, 23, 24; 17, pp 21, 22, 23, 24; 24, pp 21, 22, 23, 24; Dec. 1, pp 23, 24, 25, 26; 8, pp 21, 22, 23, 24 26, 15, pp 21, 22, 23, 24, 26; 22, pp 21, 22, 23, 24; 29, pp 21, 22, 23, 24.
statistics, Our foreign, Sept. 1, p 14.
The Connellsville coke, July 21, pp 11, 13.
The tin plate, Sept. 29, p 26.
union congress, Sept. 29, p 24; Nov. 24, p 14.
unions in 1880, English, July 21, p 15.
What there is in Australian, July 7, p 3.
with Mexico, Dec. 1, p 14.
Trading in Mexico, Aug. 25, p 26
Traffic on the Suez Canal, Increasing, Dec. 22, p 14
Opening Corea to foreign, Dec. 1, p 14
Tragedy, The lessons of the great, July 7, p 14
Train mechanics, Schools to, Nov. 10, p 17
Trains, Electric light in railway, Dec. 29, p 1
Tramway engine, A compound, Aug. 4, p 28.
Transatlantic cable, the American, Aug. 25, p 3
Transmission of power by electricity in mining, Sept. 22, p 3
Transportation on Western rivers, Difficulties of coal, Dec. 29, p 3
Transverse strains, Increasing the resistance of iron to tension, torsion and, Oct. 20, p 9
Travelers, The commercial, July 21, p 15
Treasury rulings, Steel blooms and the, Nov. 17, p 14
Treating auriferous ores, Sept. 22, p 15
complex auriferous ores, Sept. 15, p 11.
Treatment of sheet metal work in architectural finish, Aug. 4, p 26.
Treatment of steel, The, Aug. 11, p 9
Treaty, The Anglo-French commercial, Oct. 20, p 1
Trees near telegraph wires, Effects of lightning on, Nov. 10, p 11
Trial, New armor plate, Dec. 8, p 17
of steam launches, Sept. 8, p 13
of the largest dredge in the world, Aug. 11, p 9
Trials in France, Armor plate, Oct. 6, pp 3, 5
of Harrison's combination columns, Dec. 8, p 9
of pumps, Indicator, Nov. 10, p 11.
Trip of the torpedo ram A arm, Sept. 8, p 20
Tripolith, July 14, p 1
Troy Steel Works, Large production at the, Nov. 10, p 14
Trunk line railroad, A new, Oct. 27, p 14
Try-square, Improved, Dec. 8, p 11.
Tubes, Asbestos stopper for combustion, Nov. 24, p 1
Tubular boiler, New form of, Oct. 13, p 1
boilers, Horizontal, July 14, p 11
Tunnel, Mersey, Nov. 24, p 24
New features in the Hudson River, Aug. 4, p 13
The Broadway, Sept. 29, p 7
The Channel, July 21, p 5
through Mont Blanc, A, July 28, p 9
Tunneling a volcano, Sept. 15, p 26; Oct. 27, p 24
Submarine, Aug. 18, p 14
the Pyrenees, Dec. 8, p 11.
Turkey and Liberia, Patents in, Sept. 29, p 5; Nov. 3, p 3
Tyne, Early iron making on the, Sept. 1, p 1
Underground, Laying wires, Aug. 11, p 14
lines of telegraph, Sept. 22, p 17
railways, London, July 14, pp 9, 11.
telegraph lines, Nov. 17, p 14
telegraphs in Germany, Nov. 17, p 15
wires, Testing, Nov. 10, p 1
United Kingdom, Production of metals in the, Dec. 22, p 26
States, A. L. Holley on the basic process in the, Nov. 17, p 7
United States, Basic process in the, Nov. 17, p 15
States Charcoal Iron Association, Oct. 6, p 15
States, German emigration to the, Aug. 25, p 13
States, Iron mining in the, Oct. 6, p 7
States, July 1, 1881, Construction of the blast furnaces of the, July 14, p 14
States, Oct. 1, 1881, Condition of the blast furnaces of the, Oct. 20, p 14
States, Steel rails on the railroads of the, July 28, p 13
States, The manufacture of Bessemer steel and steel rails in the, Nov. 3, p 1
States, The nail works of the, Aug. 18, p 26
States, The purchasing power of money in England and the, Aug. 25, p 14
States, The railroad system of the, Aug. 4, p 9
States, Tin plate industry of the, Dec. 22, p 3
Universal force pumps, Improved, July 14, p 3
Use for electricity, Singular, Oct. 27, p 7
for the locomotive, Novel, Dec. 8, p 26
of iron framing for levels, Oct. 13, p 17
of iron in buildings, Sept. 15, p 3
of ropes, Management and, Dec. 15, p 7
of the calorimeter as a pyrometer for high temperatures, July 7, p 1
of thin sheet iron, The, Oct. 20, pp 5, 7
Useful information for business men, mechanics and engineers, Aug. 11, p 9
Uses of asbestos in chemical labratories, Nov. 3, p 1
of chloride of magnesium, Nov. 10, p 9
of iron in the construction of buildings, Oct. 20, p 1
Using fine anthracite coal, Nov. 17, p 17
Utilization of coke gas, Dec. 22, p 14
Utilizing Niagara, Aug. 25, p 13
Vacuum, Jamin's experiments with the electric candle in, Sept. 8, pp 11, 13
Value of different kinds of coal, Sept. 8, p 11
Varieties of the electric light, Nov. 17, p 13
Varnish on metal surfaces, Nov. 3, p 22
Vegetation, Effect of light and heat upon, Sept. 29, p 13
Influence of electric light on, Dec. 22, p 24
Velocity of gaseous explosion, Aug. 11, p 24
Ventilating apparatus, Test of a, Sept. 29, p 26
the St. Louis Tunnel, July 7, p 19
Ventilation of workshops, Aug. 4, p 1
Vertical rolls for bending boiler plate, Sept. 1, p 1
Vessels by electricity, Steering, Oct. 13, p 17
Vibration of Mills, Dec. 8, p 3
Vice President, The, Aug. 25, p 14
View of population, wealth and debt, Comparative, Dec. 1, p 11
Volcano, Tunneling a, Sept. 15, p 26; Oct. 27, p 24
Voltaic batteries, Improvements in, Sept. 8, p 11
Voorhees on the tariff, Senator, Nov. 3, p 15
Vulcanization of rubber, Discovery in the, Sept. 22, p 17
Wages and cost of living, Aug. 25, p 26
and labor, July 15, p 19; Sept. 22, p 15
in America, Rates of, Dec. 29, p 11
in the West, The card and, Dec. 22, p 14
Ware Association, The Stamped, Oct. 27, p 24
manufacturers, The stamped, Oct. 20, p 17
Warehouse, How to build a storage, Nov. 17, p 13
Warehouses, River front, Sept. 29, p 15
Warne, M. W., July 28, p 15
Warner furnace at Warner, Hickman County, Tenn., Dec. 1, p 11
Warner's adjustable door hanger, Nov. 10, p 24
Warning from England, A, July 21, p 14
to English iron workers not to emigrate, Oct. 27, p 13
Washed coke, July 21, p 14
Washing and separating ores, Dec. 8, p 7
Washington notes, July 14, p 17; Aug. 11, pp 15, 17; Sept. 8, p 15; Oct. 13, p 24; 27, p 13; Dec. 8, p 15; 15, p 15; 22, p 15; 29, p 24
Waste in furnace fires, Fuel, Oct. 27, p 1
Water, A new method for blasting rocks under, Sept. 1, p 1
Blasting rocks under, Dec. 29, p 13
Extracting magnesia from sea, Sept. 15, pp 7, 9
glass, Nov. 10, p 9
pipes by frost, Bursting of, Dec. 29, p 24
power in America, The cost of, Sept. 8, p 11
works, Another break at the Pittsburgh, Dec. 22, p 9
works engines, Pittsburgh, Dec. 29, p 14
Weakening of steel by heat, Nov. 10, p 9
Wealth and debt, Comparative view of population, Dec. 1, p 11
Weapons, Old styles of, Sept. 1, p 13
Weaver differential governor for water wheels, Nov. 24, p 26
Welding nickel and cobalt, Sept. 15, p 11.
Weldless ring plates for boilers, Oct. 6, p 11.
Welland Canal enlargement, Oct. 13, p 15
Wendel, August, Ph. D., Aug. 4, p 15
West, The card and wages in the, Dec. 22, p 14
The freight blockade in the, Oct. 27, p 14
Yorkshire, England, Iron ores and iron works in, Dec. 29, p 5
Western mills, Non-union labor in, July 21, p 19
rivers, Difficulties of coal transportation on, Dec. 29, p 3
Wharton School of Finance and Economy, July 7, p 17
What a furnace can do in developing a district, Dec. 22, p 17
there is in Australian trade, July 7, p 3
Wheat and corn crops, The, Sept. 1, p 14
prospects, Aug. 4, pp 9, 11
Wheel, Life of a car, Nov. 3, p 5
Wheels, Car, Dec. 1, p 14
of raw buffalo hide, Gear, Nov. 17, p 15
on shafts, Application of hydraulic pressure to force, Oct. 13, p 19
White and gray pig irons, Carbon in, Dec. 29, p 29
Wind pressures on engineering structures, Sept. 15, p 15
upon a fixed plane surface, The pressure of, Oct. 13, p 17
Window furniture, Sash and, Dec. 8, p 26
Wind's power, The, Aug. 11, p 13
Wire and fine iron, Cold rolling of, Oct. 13, p 17
fence controversy, The barbed, Nov. 3, pp 17, 19
rolling mill, An improved, Aug. 4, p 17
rope, An improvement in, Nov. 24, p 1
ropes, Testing, Nov. 3, p 13
stretcher, Samson fence, Dec. 1, p 11
Wires, A new method of connecting metallic, Oct. 13, p 19
Dangers of electric light, Nov. 17, p 15
Testing underground, Nov. 10, p 1
underground, Laying, Aug. 11, p 14
Wochler's experiments on the design of structures in iron, The influence of, Oct. 13, p 19
Wood, Preservation of, Nov. 17, p 15
Sr. Death of Alan, Dec. 1, p 26.
Work on the Brooklyn Bridge steadily advancing, Oct. 6, p 17
The English Local Government Board and its, Oct. 20, p 7
Workmanship, Minute, Nov. 3, p 13
Workmen, Employers' liability for injury to, July 21, p 1
Workshop receipts, Nov. 7, p 15
Workshops, Pay day in, Aug. 11, p 20
Ventilation of, Aug. 4, p 1
World's increase, The, Sept. 8, p 26
maritime carrying power, The, Aug. 4, pp 17, 19
Wrought iron gas pipe, Steel and, July 14, p 1
Yacht, Phosphor-bronze steam, Dec. 15, p 1
Zinc, A new crucible for producing, Sept. 15, p 7

STATISTICAL AND REFERENCE TABLES.

Anthracite coal, Statistics of, Aug. 11, p 15
Australia's imports from Great Britain and United States, July 7, p 5
Blast furnaces of Great Britain, July 14, p 24; Sept. 1, p 13
furnaces of United States, Condition of July 1, 1881, July 14, p 15
furnaces of United States, Condition of, Oct. 1, 1881, Oct. 30, p 15
British imports and exports, 1861 to 1880, Nov. 3, p 14
Copper, Exports of, 1874 to 1881, July 14, p 14
in United States, Census statistics of, Nov. 3, p 26
prices of, 1880-81, Oct. 6, p 14.
The available supply, July 1, 1881, July 14, p 14.
Dominion of Canada, Foreign trade of, 1875 to 1880, July 28, p 14.
Exports from United States to Australia, July 7, p 5.
Foreign trade of U. S., 1880, Aug. 4, p 14.
trade of United States, Sept. 1, p 14
Gold, Statistics of production and consumption, Nov. 3, p 14.
Heat transmission, Rates of, July 7, p 1.
Iron and steel, Exports of, from United States 1880, Aug. 18, p 19.
and steel, Imports of, 1871 to 1880, Aug. 18, p 19.
and steel in United States, Summary of statistics of, for 1880, Sept. 1, p 5.
and steel in United States, Summary of statistics of, Aug. 18, p 19.
and steel in warehouse, June 30, 1881, Aug. 25, p 3.
and steel, Prices of, in 1880-81, Aug. 18, p 19.
forges and bloomeries, Production of, 1873 to 1880, Sept. 1, p 5.
Imports and consumption of, 1880-81, Sept. 8, p 14.
ore, Imports of, 1879 to 1881, Aug. 18, p 19.
ore mining in U. S., Statistics of, Oct. 6, p 7.
pig, Production of United States in 1880, Aug. 25, p 9
production in U. S., 1880, Aug. 18, p 19.
rolled, Production of, United States, 1864 to 1880, Aug. 25, p 11.
Strength of English and American gun tube, July 7, p 19.
Lead, statistics of, 1876 to 1881, Sept. 22, p 14.
Nails and spikes, production of, 1878 to 1880, Aug. 25, p, 11.
New York industries, Statistics of, July 21, p 11.
Railroad system of United States, Statistics of, Aug. 4, p 9.
Rails in United States, Statistics of, 1860 to 1880, Sept. 15, p 3.
Silver—statistics of production and consumption, Nov. 3, p 14.
Specie, Imports and exports of, United States, 1870 to 1881, Aug. 4, p 14.
Spelter, Statistics of, 1872 to 1881, Oct. 13, p 14.
Steel, Bessemer production of, United States in 1880, Aug. 25, p 9.
crucible, Production of, in United States, 1880, Aug. 25, p 11.
rails on United States railroads, Statistics of, 1867 to 1880, July 28, p 13.
rails, Prices of, Aug. 18, p 19.
works of G. Britain, Bessemer, Oct. 6, p 13.
Tin plate, Fluctuations in price of, 1876 to 1881, July 7, p 19.
plate market, Course of the, Oct. 27, p 15.
Price of Straits in New York, 1880-1881, Sept. 29, p 14.
Wages and cost of living in New York, 1878 to 1881, Aug. 25, p 26.
Wheat and corn production of United States, Statistics of, Sept. 1, p 14.

ILLUSTRATIONS.

A fifty-ton derrick, Aug. 18, p 1
A new furnace scale, Dec. 22, p 17
new testing machine, Nov. 3, p 27
Amesbury band saw filing machine, The, Oct 6, p 17
expansion matcher heads, Oct. 6, p 5
An improvement in annealing furnaces, Dec. 15, p 3
Ancient door furniture, Oct. 6, pp 1, 3
Annealing furnace, The Gill, July 14, p 1
furnaces, An improvement in, Dec. 3, p 3
Artistic sheet metal work, Oct. 13, p 17
Automatic boiler feed, An improved, Aug. 11, p 1
sliding fire doors, A pair of, Dec. 1, p 7
sprinklers, Arrangement of, Dec. 1, p 3
Band saw filing machine, Amesbury, Oct. 6, p 1
Basic process, Daelen's plant, Aug. 4, p 1
Bench clamp, Improved, Sept. 15, p 3
Bending rolls, Vertical boiler plate, Sept. 1, p 1
Bessemer plant for the basic process, Aug. 4, p 1
process, The chemical reactions of the, Nov. 3, pp 7, 9
Bishop sprinkler, The, Dec. 1, p 5
Blast furnace, An obstructed, July 14, p 5
furnace, The use of high explosives in, Nov. 17, pp 1, 3
Blowing engines, Horizontal, Dec. 22, p 1
Boiler feed, An improved automatic, Aug. 11, p 1
furnaces, Marland's improvements of, Sept. 22, pp 1, 2
The Duplex safety, July 21, p 1
Bronze hardware, New patterns of, Dec. 8, p 19
Burritt sprinkler, The, Dec. 1, p 5
Car wheels, Cast steel rolled, elevation and plan, Aug. 11, p 15
Cast iron girder, New form of, Nov. 24, p 15
iron panel from the Royal Wurtemberg Foundry, Dec. 8, p 1
register, A, Aug. 11, p 24
steel car wheels, Rolled, Aug. 11, p 15
Cedar Point furnace, Illustrating paper by T. F. Witherbee, Nov. 17, pp 1, 3
Chapman straightway valve, Nov. 24, p 11
Chemical reactions in the Bessemer process, Nov. 3, pp 7, 9
Clerk's gas engine, The, Nov. 10, p 1
"Common Sense" drying room, Nov. 17, p 7
Compound engine, Semi portable, Nov. 24, pp 1, 3
Construction of buildings, Uses of iron in, Oct. 20, p 1
Counter-balancing of engines and other machinery, Aug. 18, pp 7, 9, 11; 25, p 15
Cut metal work, Decorative, Nov. 24, p 17
Daelen's Bessemer plant, Elevation and plan of, Aug. 4, p 1
Decorative cut metal work, Nov. 24, p 17
Drill press, vertical, Improved, Nov. 3, p 1
Dephosphorization of iron, Nov. 3, p 15
Derrick, A fifty-ton, Aug. 18, p 1
Diagram showing the production, consumption and price of rails in the United States from 1860 to 1880, Sept. 15, p 1
Door furniture, Ancient, Oct. 6, pp 1, 3
hanger, Warner's adjustable, Nov. 10, p 24
spring, Improved, July 7, p 13
Double-valve hydrant, Nov. 24, p 7
Drawings and patterns, Method of arranging and indexing, Aug. 25, p 19
Drop presses, Improvement in, Sept. 22, p 19
Drying room, "Common Sense," Nov. 17, p 7
Duplex safety boiler, July 21, p 1
East River Bridge super-tructure, Fabrication of, Sept. 22, pp 9, 10
Elevation and plan of rail finishing plant, July 28, p 1
Emery-wheel dresser, The Huntington, Dec. 15, p 9
Engines and other machinery, Counter-balancing of parts of, Aug. 18, pp 7, 9, 11; 25, p 15
Engines, Comparisons of different types of, Aug. 18, p 3
Horizontal blowing, Dec. 22, p 1
English rail finishing plant, July 28, p 1
Essay on springs, An, July 28, p 3
Expansion and regulation of steam engines, Aug. 18, p 15
matcher heads, Amesbury, Oct. 6, p 5
Eye bars, An old mill for rolling, Aug. 4, p 17
F. Brocq's apparatus for determination of water held in suspension by steam, Sept. 29, p 1
Fabrication of superstructure of East River Bridge, Sept. 22, pp 9, 10.
Filtafer calcining kiln, The, Sept. 8, p 3
Fire doors, Automatic sliding, Dec. 1, p 7
protection in mills and factories, Nov. 24, pp 7, 9, 11
Force pump, Improved universal, July 14, p 3
Furnace scale, A new, Dec. 22, p 17
Furnaces, Annealing, Dec. 15, p 3
Gas engine, Clerk's, Nov. 10, p 1
engine, the Ravel, July 7, p 1
German helve hammer, A new, July 21, p 13
ornamental coating, Dec. 8, p 1
Gill annealing furnace, The, July 14, p 1
Girder, New form of, Nov. 14, p 15
Gothics and puddling rolls, Dec. 15. pp 17, 19
Grindstone, Method of using, July 7, p 30.
Gun milling machine, New pattern, Nov. 3, p 1
Heat diagram, Ravel gas engine, July 7, p 3
Helve hammer, A new German, July 21, p 13
High explosives in the blast furnace, The use of, Nov. 17, p 1.
Hill's spring whiffletree, July 14, p 13
Horizontal blowing engine at the Staveley Iron Works, Dec. 22, p 1
Huntington emery wheel driver, Dec. 15, p 9.
Hydrants, Jenkin's straightway valve, Nov. 24, p 7
Hydraulic cranes, Scott's apparatus for utilizing waste water, Aug. 25, p 1.
Improved bench clamp, Sept. 15, p 3
roof bracket, Nov. 17, p 9
try square, An, Dec. 8, p 1
vertical drill press, Nov. 3, p 1
Improvement in drop presses, Sept. 22, p 19
Improvements in planes, Oct. 6, p 3
Iron, Dephosphorization of, Nov. 3, p 15
in slags, Nov. 3, p 9
Kinney's ripping plane, Oct. 6, p 3
Langenstepen boiler feeding apparatus, The, Aug. 11, p 1
Lillenberg's calcining kiln for iron ore, Sept. 8, p 1
"Lotus" force pump, The, July 14, p 3
Machine, A new testing, Nov. 3, p 27
for meat cargoes, Refrigerating, Dec. 1, p 1
Steam chest seat milling, Dec. 29, p 1
The Parker dovetailing, Dec. 8, p 13
Thompson's patent pulverizing, Dec. 15, p 1
tools, New, by Newton Machine Tool Co., Nov. 3, p 1.
Management and use of ropes, Dec. 15, pp 7, 9
Manufacture of Russia sheet iron, Sept. 8, p 3
Marland's improvements for utilizing the heat of boiler furnaces, Sept. 22, pp 1, 2
Method of arranging and indexing drawings and patterns, Aug. 25, p 19.
Mills and factories, Fire protection in, Nov. 24, pp 7, 9, 11; Dec. 1, pp 3, 5, 7
Mineral wool, The use of, for non-conduction, Dec. 8, p 17.
Nabholz's riveting machine, Oct. 6, p 1
New double-action stamping and drawing press, July 28, p 9
form of cast-iron girder, Nov. 24, p 15
form of tubular boiler, Oct. 13, p 1
high school building, Stuttgardt, Artistic metal work on, Oct. 13, p 17.
patterns in bronze hardware, Dec. 8, p 19.
Non-conducton—Use of mineral wool, Dec. 8, p 17
Non-freezing pump, The "Lotus," July 14, p 3
Ornamental casting, German, Dec. 8, p 1
Paris Electrical Exhibition—French semi-portable compound engine, Nov. 24, pp 1, 3
Parker dovetailing machine, The, Dec. 8, p 13
Planes, Kinney's improvements in, Oct. 6, p 3
Puddling rolls, Gothic- and, Dec. 15. pp 17, 19
Pulverizing machine, Thompson's patent, Dec. 15, p 1
Pyrometer, Ravel gas engine, July 7, p 3
Rail finishing plant, Modern English, July 28, p 1
lift and turntable, Elevation, July 28, p 3
slotting machine, July 28, p 3
straightening machine, July 28, p 1
Rails in the United States from 1860 to 1880, Diagram showing the production, Consumption and price of, Sept. 15, p 1
Ravel gas engine, The, July 7, p 1
Refrigerating machine for meat cargoes, Dec. 1, p 1
Riveting machine, Nabholz's, Oct. 6, p 1
Roasting iron ore, Lillenberg's calcining kilns, Sept. 8, p 1
Roof bracket, Improved, Nov. 17, p 9
Roofs and floors, Slow-burning, Oct. 6, p 17
Rolled cast steel car wheels, Aug. 11, p 15
Rolling eye-bars, An old mill for, Aug. 4, p 17
Ropes, Management and use of, Dec. 15, pp 7, 9
Rotary pump and connection, Fire protection, Nov. 24, p 7; Dec. 1, pp 3, 5, 7
Russia sheet iron, The manufacture of, Sept. 8, p 3
Safety boiler, The duplex, July 21, p 1
lamp, Westland's, Dec. 1, p 7
Sampson fence wire stretcher, The, Dec. 1, p 11
Sash and window furniture, Dec. 8, p 26
lift and lock, Combined, Dec. 8, p 26
Scott's apparatus for utilizing waste of hydraulic cranks, Aug 25, p 1
Screw jack, An improved form of, Sept. 22, p 5
Self-locking shutter bar, Dec. 8, p 26
Semi portable compound engine, Paris electrical exhibition, Nov. 24, pp 1, 3
Set riveting—Specimens of plans, July 7, p 11
Shears for steel makers, Oct. 27, p 1
Sheet metal work, Artistic, Oct. 13, p 17
Slags, Iron in, Nov. 3, p 9
Slotting machine, July 28, p 3
Slow burning roofs and floors, Oct. 6, p 17
Small power steam motor, A new, Sept. 29, p 11
Spring whiffletree, Hall's, July 14, p 13
Springs, An essay on, July 28, p 3
Stamping and drawing press, New double action, July 28, p 9
Stavely Iron Works, Horizontal blowing engines at, Dec. 22, p 1
Steam chest seat milling machine, Dec. 29, p 1
engines, Expansion and regulation of, Aug. 18, p 15
motor, A small power, Sept. 29, p 11
shears for steel makers, Oct. 27, p 1
Submarine sounding machine, Sept. 1, pp 7, 9, 10
telegraph work, The latest methods of, Sept. 1, p 7
Telegraph work, The latest methods of, submarine, Sept. 1, p 7
Telegraphs in Germany, Underground, Nov. 17, p 15
Thomas & Gilchrist's dephosphorization of iron, Nov. 3, p 15
Thompson's patent pulverizer, Dec. 15, p 1
Tin plate, Fluctuations in price, July 7, p 19
Try square, An improved, Dec. 8, p 1
Tubular boiler, New form of, Oct. 13, p 1
Turntable and rail lift, Plan and elevation, July 28, p 3
Types of engines, Comparison of, Aug. 18, p 3
Underground telegraphs in Germany, Nov. 17, p 15
Universal force pump, Improved, July 14, p 3
Uses of iron in the construction of buildings, Oct. 20, p 1
Vertical boiler plate bending rolls, Sept 1, p 1
Warner's adjustable door hanger, Nov. 10, p 24
Water held in suspension by steam, F. Brocq's apparatus for determining, Sept. 29, p 1
Westland safety lamp, Dec. 1, p 7
Whiting automatic sprinklers, Dec. 1, p 3
Wire stretcher, The Simpson fence, Dec. 1, p 11
Wurtemberg Royal Foundry, Cast-iron panel from, Dec. 8, p 1